THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 8356

No. XIII. OF VOL. II., 1915.
No. 4804. Vol. CLXXXIX. LONDON, SATURDAY, SEPTEMBER 25, 1915. Price 6d.

BY H. J. WARING, M.S., M.B., B Sc.Lond., F.R.C.S., Surgeon to, and Joint Lecturer in Surgery at, St. Bartholomew's Hospital; Consulting Surgeon to the Metropolitan Hospital; Member of Court of Examiners, Royal College of Surgeons; late Examiner in Surgery, University of London.

New Edition Shortly. 8vo, extra cloth. Pp. xvi.-385, with 58 Engravings. Price 12s. 6d. net.

SURGICAL DISEASES OF THE GALL-BLADDER, BILE DUCTS, AND LIVER.

THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT.

(*Including Jacksonian Prize Essay.*)

Henry Frowde & Hodder & Stoughton, 20, Warwick-square, E.C.

THE AMAZING PROGRESS IN

THE SURGERY OF THE STOMACH

is described in many fully illustrated pages of the New Edition of

THE OPERATIONS OF SURGERY (JACOBSON).

By R. P. ROWLANDS and P. TURNER, Surgeons, Guy's Hospital.

Extract from Contents:—Gastrotomy, Gastrostomy, Gastric and Duodenal Ulcers, Gastro-jejunostomy, Pyloroplasty, Gastrectomy, Gastropexy.—Gunshot Injuries of Abdomen, Chronic Intestinal Stasis, Appendicitis.

VOL. I. UPPER AND LOWER EXTREMITIES, HEAD, NECK, THORAX, VERTEBRAL COLUMN.

VOL. II. THE ABDOMEN.

The Two Vols., 797 Illustrations (40 in Colour), £2 10s. net.

"*.* *This great book is again fully up to date in its text and with hundreds of new illustrations. It will long continue to be the favourite companion for both Military and Civil Surgeons.*

London: J. & A. Churchill, 7, Great Marlborough-street.

BONESETTING and the TREATMENT of PAINFUL JOINTS.

By FRANK ROMER, M.R.C.S., L.R.C.P., and L. BLIOT CREASY, M.R.C.S., L.R.C.P.

Crown 8vo. 1s. net.

"Messrs. Romer & Creasy strip this branch of practice of the cloud of mystery and miracle which has been thrown around it by interested people and well-meaning, but ignorant supporters. They effectually disprove the foolish charge that the medical profession has wilfully ignored the subject, and they have dealt with it in an unprejudiced spirit. Moreover, they bear witness to the fact that the profession keeps an open mind as to everything connected with the treatment of disease and the relief of pain and physical disability, and is willing to learn from any source anything that may seem likely to be useful for these purposes."—BRITISH MEDICAL JOURNAL.

James Nisbet & Co., Limited, 22, Berners-street, W.

JUST PUBLISHED. Price 12s. 6d. net.

PRACTICAL ORGANIC & BIO-CHEMISTRY

By R. H. A. PLIMMER, D.Sc.,

Reader in Physiological Chemistry, University of London.

With a Coloured Plate of Absorption Spectra and 86 Illustrations in the Text.

"*.* *A New Edition of the Author's "Practical Physiological Chemistry," Revised and much Enlarged.*

Prospectus sent on application.

Longmans, Green & Co., 39, Paternoster-row, London, E.C.

By FREDERICK J. McCANN, M.D.Edin., F.R.C.S.Eng., Surgeon, Samaritan Free Hospital for Women, London, N.W.

CANCER OF THE WOMB: ITS SYMPTOMS, DIAGNOSIS, PROGNOSIS, AND TREATMENT. Fully illustrated. 20s. net.

LIVERPOOL MEDICO-CHIRURGICAL JOURNAL.—"Cancer of the Womb, by F. J. McCann, is a book that can be recommended alike to the general practitioner and the specialist. Written in a fluent manner, it embodies the ripe experience of a renowned operator, trained observer, and patient investigator."

EDINBURGH MEDICAL JOURNAL.—"The book is one of very great merit; it will be read with interest both by the specialist and general practitioner as an authoritative exposition of the important subject with which it deals."

PRACTITIONER.—"Dr. McCann has produced a valuable work which deserves to be widely known."

ST. BARTHOLOMEW'S HOSPITAL JOURNAL.—"The plates are excellent. This is a book we can thoroughly recommend."

London: Henry Frowde and Hodder & Stoughton.

CASTELLANI & CHALMERS' TROPICAL MEDICINE. Second Edition. Pp. 1780. With 15 Coloured Plates and 630 other Illustrations. Price 21s. net.

THE JOURNAL OF TROPICAL MEDICINE says: "This book has no rival."

London: Baillière, Tindall & Cox.

LUYS' GONORRHŒA AND ITS COMPLICATIONS. Translated by A. FOERSTER, M.R.C.S., L.R.C.P.

"Medical men cannot have a more suitable book than this."—LANCET.

Pp. 404. With 200 Illustrations, 3 Coloured Plates. 15s net.

London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

MALLORY'S PATHOLOGIC HISTOLOGY

AND OTHER STANDARD

BOOKS FOR STUDENTS.

See Saunders' Advertisement on Page 5.

Profusely Illustrated. Super roy.8vo. 8s. 6d. net; interleaved, 9s. 6d. net.

AN INTRODUCTION TO SURGERY.

By Professor RUTHERFORD MORISON, M.A., M.B., F.R.C.S. Edin. & Eng., Prof. of Surg., Univ. of Durham; Coll. of Med., Newcastle-on-Tyne.

"Extremely suggestive ..... in our opinion Mr. Morison has been singularly successful. ..... It has a reason and character of its own."—LANCET. "We wish that every student could have placed in his hands this little work. ..... Even practitioners will profit by being made to see the great fundamental principles underlying their daily routine."—BRIT. MED. JOUR. Bristol: Wright & Sons Ltd. London: Simpkin & Co. Ltd.

BY C. MANSELL MOULLIN, M.D.Oxon., F.R.C.S., Consulting Surgeon to the London Hospital.

Fourth Edition.

ENLARGEMENT of the PROSTATE. Price 6s.

London: H. K. Lewis & Co., Ltd., 136, Gower-street.

WHEN to OPERATE in INFLAMMATION of the APPENDIX. Third Edition now ready. Price 2s. 6d.

London: J. Bale & Danielsson, Ltd., 83-89, Gt. Titchfield-street.

NEARLY READY. With 150 Illustrations.

By CHARLES J. HEATH, F.R.C.S. Eng., Late Surgeon to the Hospital for Diseases of the Throat, Golden-square, London.

AURAL SUPPURATION: ITS ARREST, WITH PRESERVATION OF THE HEARING.

The indications for performance of the Author's conservative mastoid operation.

London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

J. W. THOMSON WALKER, M.B., C.M.Edin., F.R.C.S. Eng.

SURGICAL DISEASES AND INJURIES OF THE GENITO-URINARY ORGANS.

880 pages, 24 Colour and 21 Black-and-White Plates and 279 Illustration in the Text. Price 25s. net.

"Will hold its place for many years as the best English text-book of the subject."—BRITISH JOURNAL OF SURGERY.

Cassell & Co., La Belle Sauvage, London, E.C.

FREYER'S ENLARGEMENT of the PROSTATE. With a Description of the Author's Operation of Total Enucleation of the Organ. A Work based on 800 Cases of the Operation. THIRD EDITION. With 54 Illustrations. Price 6s. net.

SURGICAL DISEASES OF THE URINARY ORGANS. With 141 Illustrations. Price 12s. 6d. net.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, London.

By Royal Warrant

To H.M. King George V. — To H.M. Queen Alexandra.

Holders of Royal Warrants during three successive Reigns.

Jeyes' Disinfectants

FLUID, POWDER, SOAP

JEYSOL

Identical in composition with original German Lysol, and equally efficient.

Jeyes' Sanitary Compounds Co., Ltd., 64, Cannon Street, London, E.C.

"LESLIES' ZINCOPLAST"

A MUCH IMPROVED MAKE OF ZINC OXIDE PLASTER. STRONGLY SELF-ADHESIVE; NON-IRRITATING; DOES NOT DRY UP.

May be obtained on White or Pink Tinted Cloth, 5 yd. or 10 yd. spools, in all the usual widths.

Medical Officers and Pharmacists are invited to write for Trial Sample.

LESLIES' Original Brown Holland Surgical Strapping (DOES NOT SLIP).

In General Hospital Use since 1875. Has a World-wide Reputation.

LESLIES, Ltd., 18, Eldon Street, London, E.C.

"Sauermilch"

THE PREMIER Lactic Acid or Soured Milk Preparation.

Prepared in our own Milk Laboratories under the direct control of a skilled bacteriological staff.

WELFORD & SONS (Dairy Company), Ltd.

Chief Offices and Milk Laboratories : : : ELGIN AVENUE, LONDON, W.

Principal Telephone: "Paddington 5468" (2 Lines). Telegraphic Address: "Welfords Maida, London.

THE LANCET.

No. 4804. LONDON, SATURDAY, SEPTEMBER 25, 1915. Vol. CLXXXIX.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

EXPERIENCES in the Treatment of Typhoid Fever by Stock Typhoid Vaccine. By H. W. WILTSHIRE, M.A., M.D. Cantab., M.R.C.P. Lond., Temporary Captain, R.A.M.C.; and A. R. N. MACGILLYCUDDY, M.R.C.S., L.R.C.P. Lond., Temporary Lieutenant, R.A.M.C.—(*Illustrated*) 685

ORIGINAL ARTICLES.

On Nervous Furring of the Tongue and Disturbed Taste. By Sir JAMES GOODHART, M.D., LL.D. Aberd., F.R.C.P. Lond., Consulting Physician to Guy's Hospital..... 691

The Pleomorphism of the Meningococcus. By ALEX. LUNDIE, M.B., Ch.B. Edin., Lieutenant, R.A.M.C.; D. J. THOMAS, M.R.C.S., L.R.C.P. Lond., D.P.H. Oxon., Lieutenant, R.A.M.C.; and S. FLEMING, M.B., C.M. Edin., D.P.H. Camb., Lieutenant, R.A.M.C.—(*Illustrated*) 693

Neurasthenia Gastrica. By J. CAMPBELL MCCLURE, M.D. Glasg., Physician to Outpatients, French Hospital, London; Physician to the Margaret-street Hospital for Consumption; late Assistant to the Physician to Outpatients, Middlesex Hospital 695

Notes on a Case of Multiple Exostoses with Hereditary History. By ROBERT COX, B.A., M.B., B.Ch. R.U.I., Medical Officer, Federated Malay States Medical Department.—(*Illustrated*) 701

The Transmission of Malaria in Northern France. By J. HENRY DIBLE, M.B., Ch.B. Glasg., Demonstrator of Pathology in the University of Sheffield; Temporary Captain, R.A.M.C. 701

A Case of Syphilitic Nephritis treated by Salvarsan. By NORMAN MACDONALD, M.R.C.S., L.R.C.P. Lond., Temporary Lieut., R.A.M.C. With Remarks by SIDNEY PHILLIPS, M.D. Lond., F.R.C.P. Lond., Senior Physician, St. Mary's Hospital; Physician to the London Lock Hospital 702

A Note on the Testing of Disinfectants. By SAMUEL RIDEAL (London) and J. T. AINSLIE WALKER (New York) 717

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Note on a Relapsing Febrile Illness of Unknown Origin. By J. H. P. GRAHAM, L.R.C.P. Lond., M.R.C.S..... 703

A Case of Influenzal Meningitis. By C. VINCENT BOLAND, M.R.C.S., L.R.C.P. Lond..... 704

REVIEWS AND NOTICES OF BOOKS.

Morris's Human Anatomy: A Complete Systematic Treatise by English and American Authors. Edited by C. M. Jackson, M.S., M.D. Fifth edition 705

Pyelography (Pyelo-Ureterography): A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By William F. Braasch, M.D. 705

A Campaign against Consumption. A Collection of Papers relating to Tuberculosis. By Arthur Ransome, M.D. Cantab., F.R.C.P. Lond., F.R.S. 705

The Practice of Pediatrics. By Charles Gilmour Kerley, M.D. 706

Diagnostic and Therapeutic Technic: A Manual of Practical Procedures Employed in Diagnosis and Treatment. By A. S. Morrow, M.D. Second edition 706

Modern Bone-setting for the Medical Profession. By Frank Romer, M.R.C.S. Eng., L.R.C.P. Lond. 707

Infant Health. By Miss J. C. C. Macmillan 707

The Selection of the Recruit. By S. T. Beggs, M.D. Belf. 707

The Philippine Journal of Tropical Medicine. Vol. X... 707

Malaria e Malattie dei Paesi Caldi 708

REPORTS AND ANALYTICAL RECORDS FROM THE LANCET LABORATORY.

Chymol 708

Cyto serum..... 708

LEADING ARTICLES.

INDUSTRIAL FATIGUE AND MUNITION WORK 709

HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD AND ITS CRITICS 710

ANNOTATIONS.

The Budget 711

Edward Lawrie and the Story of Chloroform 712

The Pleomorphism of the Meningococcus 712

Physical Training 713

The Treatment of Progressive Paralysis by Ehrlich-Hata Preparations 713

Grime's Graves..... 714

The Treatment of Beri-beri 714

The Drug Tariff under the National Insurance Act..... 715

Epididymotomy for Acute Epididymitis 715

Recurrence of Torsion of the Small Intestine after Extensive Resection 716

The Incident of the *Noordzee*... 716

Bovine Actinomycosis 717

PUBLIC HEALTH.

Annual Reports of Medical Officers of Health..... 721

VITAL STATISTICS:

Health of English Towns..... 722

Health of Irish Towns 722

SPECIAL ARTICLES.

The Belgian Doctors' and Pharmacists' Relief Fund: The Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés.—The Week's Subscriptions.—The Appeal for Surgical Instruments 718

Scotland: Edinburgh University Preliminary Examinations.—Edinburgh Insurance Committee.—Highlands and Islands Medical Service Board.—Nairn Town and County Hospital.—Royal Dundee Institution for the Blind.—Death of Dr. John Gregory, of Aberdeen 719

Notes from India: The Waste of Life from Plague.—Vaccination in the Punjab.—Five at a Birth.—An Indian Medical Service Commission.—St. John Ambulance Red Cross War Fund 719

The Services: Royal Navy Medical Service.—Royal Naval Volunteer Reserve.—Royal Army Medical Corps.—Indian Medical Service.—Special Reserve of Officers.—Territorial Force.—Territorial Force Reserve 722

CORRESPONDENCE.

The Surgeon-Probationers (Senior Medical Students) Serving in the Navy (Sir Donald MacAlister, K.C.B.).. 724

Report of Departmental Committee on Drug Tariff under National Insurance Act (Dr. Major Greenwood) 724

The Pathology of Diabetic Coma (Dr. E. P. Poulton)..... 725

The Functional Disorders of the Veins (Dr. Harry Campbell).—(*Illustrated*) 725

A Green Background for the Operation Area (Sir William Milligan, Mr. C. Hamilton Whiteford) 727

Localisation by Bergonié's Electro-vibreur (Dr. Ettie Sayer) 727

The Forms of Lower Organisms as Dependent upon Molecular Constitution and Environmental Conditions (Dr. J. T. C. Nash) 727

The Dearth of Medical Men with the Forces (Mr. K. D. Marriner) 728

An Amended Medical Curriculum 728

Superstition in Essex 738

THE WAR.

The Casualty List..... 730

The Wastage of War 730

Health of Munition Workers Committee 730

The War Emergency Committee: The Dearth of Doctors..... 731

Italy at War: The Loss of Visitors..... 731

The Exhibition of Fracture Apparatus 732

The Medical Staff of the Anglo-Russian Hospital 732

The Scarcity of Nurses 732

A South African Hospital Fund..... 732

War Hospital Supply Depôt, Highgate 732

The War in Relation to Insanity 732

OBITUARY.

Professor Ugo Schiff 728

John Henry Dauber, M.B., B.Ch. Oxon., F.R.C.S. Irel., Lieut.-Col., R.A.M.C.; Surgeon to the Hospital for Women, Soho 729

Joseph Smith, M.R.C.S., D.P.H. 729

Edward James Sheppard, L.R.C.P., L.R.C.S. Edin..... 729

MEDICAL NEWS.

Bristol General Hospital 700

Hospital Saturday at Newton Abbot (Devon) 703

Donations and Bequests 711

A Tuberculosis Scheme for Plymouth 717

Middlesex Hospital..... 717

Centenarians..... 720

Sanatoria under the National Insurance Act 724

Medical Defence Union..... 724

Air Raid Dangers..... 732

Royal College of Surgeons in Ireland 732

The National Registration Act and Voluntary Workers 733

The Pharmaceutical Society of Great Britain..... 733

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: The Parliamentary Session.—Casualties in the Dardanelles.—The Budget.—Medical Officer Prisoners 733

House of Commons..... 733

Books, &c., received 734

Appointments 735

Vacancies 735

Births, Marriages, and Deaths.. 735

Notes, Short Comments, and Answers to Correspondents... 736

Medical Diary 737

Meteorological Readings 737

Acknowledgment of Communications received 738

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

ARNOLD:— PAGE
Dixon ..... Manual of Pharmacology 7
Howard .... The Practice of Surgery 7
Hutchison.. Lectures on Diseases of Children 7
MacLennan Surgical Materials and their Uses 7
Saundby .. Urinary Symptoms in Medical Practice .. 7
Savill ..... A System of Clinical Medicine 7
Silk ..... Modern Anæsthetics. 7

BAILLIERE, TINDALL & COX:—
Bigg..... Indigestion 8
" ..... War Diseases (Typhus, Enteric, Dysentery, and Cholera)..... 8
Castellani & Chalmers' Tropical Medicine ..... Cover 1
Freyer .... Enlargement of the Prostate .... Cover 1
" .... Surgical Diseases of the Urinary Organs Cover 1
Heath ..... Aural Suppuration: Its Arrest, with Preservation of the Hearing .... Cover 1
Luys' Gonorrhœa and its Complications ..... Cover 1

BALE, SONS & DANIELSSON:—
Moullin.... When to Operate in Inflammation of the Appendix .. Cover 1

CASSELL & CO.:— PAGE
Walker .... Surgical Diseases and Injuries of Genito-Urinary Organs Cover 1

CHURCHILL, J. & A.:—
Rowlands & Turner .. The Operations of Surgery .... Cover 1
Thorne, Besly .... Schott Methods of the Treatment of Chronic Diseases of the Heart 8

FROWDE AND HODDER & STOUGHTON:—
McCann .. Cancer of the Womb: Its Symptoms, Diagnosis, Prognosis, & Treatment .. Cover 1
Waring .... Surgical Diseases of the Gall Bladder, Bile Ducts, & Liver Cover 1

GLAISHER:—
West ..... Granular Kidney and Physiological Albuminuria 8

LEWIS & CO:—
Allen ..... Vaccine Therapy: its Theory and Practice 3
Bruce ..... A System of Radiography 3
Carter..... Elements of Practical Medicine..... 3

LEWIS & CO.—(Continued). PAGE
Cooper .... Sexual Disabilities of Man & their Treatment 3
Delorme .. War Surgery 3
Ham ..... Handbook of Sanitary Law 3
Moullin .... Enlargement of the Prostate .... Cover 1
Murrell .... What to Do in Cases of Poisoning..... 3
Murray .... Rough Notes on Remedies 3
Rutherford. The Ileo-Cæcal Valve 3
Smith ..... Some Common Remedies and their Use in Practice .. . 3

LONGMANS, GREEN & CO.:—
Plimmer .. Practical Organic and Bio-Chemistry Cover 1

MEDICAL PUBLISHING CO.:—
Lane, Sir A. .... Operative Treatment of Fractures 8

MURRAY:—
Brunton, Sir L. .... Therapeutics of the Circulation 8

NISBET & CO.:—
Romer & Creasy .. Bonesetting and the Treatment of Painful Joints.... Cover 1

SAUNDERS COMPANY:— PAGE
Anders & Boston .. Medical Diagnosis .. 5
De Schweinitz Diseases of the Eye.. 5
Eyre ..... Bacteriological Technique 5
Ky'e ..... Diseases of Nose and Throat 5
Mallory .... Pathologic Histology 5
Mallory's Pathologic Histology and other Standard Books for Students ..... Cover 1
Sobotta .... Atlas of Anatomy.... 5
Wells ..... Chemical Pathology.. 5

THE LANCET:—
The Free Feeding of School Children..... 8

WRIGHT & SONS (BRISTOL):—
Index of Prognosis and End Results of Treatment 6
Index of Treatment 6
Morison .... An Introduction to Surgery .... Cover 1

MEDICAL LIBRARIES, &c.:—
Behnke—
Stammering, Lisping, and Cleft-Palate Speech 8
Kotley—
Stammering..... 8
Matthews—
Wood: Application of Trusses to Hernia 8
Schnelle—
Stammering 8

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Birmingham General Dispensary . 47
Bristol Royal Infirmary 48
Canterbury Mental Hospital..... 49
City of Norwich..... 47
Darlington Hospital and Dispensary 48
David Lewis Northern Hospital, Liverpool 48
Elder Dempster & Co., Liverpool.. 49
Evelina Hospital for Sick Children 47
Great Yarmouth Hospital 47
Harrogate Infirmary 49
Huddersfield Royal Infirmary 48
Ingham Infirmary, &c., South Shields..... 47
King Edward VII.'s Hospital, Cardiff 47
Leeds Public Dispensary 48
Leicester Royal Infirmary 49
Lochgoilhead and Kilmorich Parish Council 49
London Temperance Hospital 48
London Throat Hospital 49
Middlesex Hosp. Medical School—Lectureship in Anatomy 48
Newcastle upon Tyne Poor-law Infirmary 49
North Riding Infirmary, Middlesbrough 47
Queen Charlotte's Lying-in Hospital 47
Reeth Union and Rural District Council 47
Rhondda Urban District Council. 49
Royal Albert Edward Infirmary and Dispensary, Wigan..... 48
Royal College of Surgeons of England 48
Royal Free Hospital, Gray's Inn-road 49
Royal London Ophthalmic Hospital 48
Royal Portsmouth Hospital 49
Royal South Hants and Southampton Hospital 47
Salford Royal Hospital 48
Sheffield Royal Infirmary 49
Southwark Union..... 47
Storthes Hall Asylum, Kirkburton 49
Township of Toxteth Park 48
West Bromwich and District Hospital 47
West Derby Union 48
West Ham and Eastern General Hospital 47
West Ham Union Infirmary 49
Westmorland Sanatorium, Meathop, Grange-over-Sands 49
Whitehaven and West Cumberland Infirmary 49
Winsley Sanatorium for Consumption, near Bath 49
Worcester General Infirmary 48
Wounded Allies Relief Committee, Kingsway 49
York County Hospital 48

ASSISTANCIES, MEDICAL:—
Arnold & Sons, Giltspur-street.... 50
Bunting, Newcastle-on-Tyne 50
G. T. H., High Holborn 50
Lance, 401, Fulham-road 50
Miller, Harley-street 50
M.O., Stafford..... 50
No. 579, L.O., Strand 50
No. 582, L.O., Strand 50
No. 583, L.O., Strand 50
No. 585, L.O., Strand 50
Summerhays, Eastcheap 50
Turner, Adam-street 50

ASYLUMS, HOMES, &c.:—
Abbotswood House, Cinderford .. 44
Ashwood House, Kingswinford .. 46
Barnsley Hall, Bromsgrove 46
Barnwood House Hospital 42
Bishopstone House, Bedford..... 46
Brunton House, Lancaster..... 46
Buntingford House Retreat, Buntingford..... 43
Camberwell House, Peckham-road 43
Capel Lodge Retreat and Sanatorium, near Folkestone 44
Cheadle Royal..... 42
Clarence Lodge, Clapham Park .. 41
Colthurst House, Alderley Edge . 41
Coppice, The, Nottingham..... 42
Court Hall, Kenton, near Exeter.. 46
Dalrymple House, Rickmansworth 44
Dartmoor Sanatorium 45
David Lewis Colony, Alderley Edge 41
Duff House, Banff..... 45
"Emily Mangles" Convalescent Home, Farnham 46
Ghyllwoods 44
Grove House, Church Stretton.... 42
Grove, The, Catton, Norwich..... 42
Haydock Lodge, Newton-le-Willows 43
Heigham Hall, Norwich 42
Home for Epileptics, Maghull 41
Invernith Sanatorium, Colinsburgh 44
Littleton Hall, Brentwood 46
London Fever Hospital..... 42
Mailing Place, Kent 42
Melbourne House, Leicester 44
Mendip Hills Sanatorium 44
Meyrick, Brighton 46
Middleton Hall, Co. Durham..... 41
Moat House, Tamworth 43
Newmains Retreat, Lanarkshire.. 44
Nordrach-on-Dee, Banchory 45
Northumberland House, Finsbury Park 46
Northwoods House, Winterbourne 43
No. 331, L.O., Strand 47
No. 412, L.O., Strand 46
No. 574, L.O., Strand 46
Peckham House..... 45
Pendyffryn Hall Sanatorium, Nordrach-in-Wales 44
Plympton House, Plympton 42
Portsmouth Corporation Mental Hospital 46
Ravenscroft House, Golders Green 46

ASYLUMS—(Continued).
St. Andrew's Hospital, Dollis Hill 47
St. Andrew's Hospital, Northampton 42
St. Luke's Hospital for Mental Diseases 44
St. Raphaels, Buxted, Sussex .. 43
Services Club Convalescent Home for Officers 47
Shaftesbury House, Formby-by-the-Sea..... 43
Springfield House Private Asylum, Bedford 44
Stretton House, Church Stretton . 42
The General Manager, Cravenstreet 47
The Grange, near Rotherham 42
Vale of Clwyd Sanatorium 45
Warneford Asylum, Oxford..... 44
Wye House, Buxton 42

HEALTH RESORTS, BATHS, &c.:—
Droitwich Brine Baths 45
Smedley's, Matlock 45

HOUSE & ESTATE AGENTS:—
Drake, Rochester..... 51
Elliott, Son & Boyton, Vere-street 51

LIFE & FIRE ASSURANCES, &c.:—
Prudential..... 39

MASSAGE:—
Associated Male Nurses and Masseurs 39
London School of Massage 41

MEDICAL ACCOUNTANTS, &c.:—
Turner 50

MEDICAL AGENTS:—
Fieldhall, Limited 52
Manchester Clerical, &c., Association 51
Medical Agency 52
Moore & Co. 49
Needes, Herbert 52
Needes, J. C. 52
Peacock & Hadley..... 52
Scholastic, Clerical, &c., Association 52
Turner 52

MEDICAL SCHOOLS:—
(LONDON.)
London Hospital Medical College and Dental School 38
London School of Clinical Medicine 38
Middlesex Hosp. Medical School .. 37
St. Bartholomew's Hospital and College 36
University College Hosp. Medical School 38
West London Post-Graduate College 36

MEDICAL SCHOOLS—(Continued).
(PROVINCIAL, &c.)
Anderson College of Medicine, Glasgow 39
Edinburgh School of Medicine for Women 39

NURSING INSTITUTES:—
Co-operation of Temperance Male and Female Nurses 40
General Nursing Association..... 39
Hospital for Sick Children, Great Ormond-street 41
London Nurses' Association 40
London Temperance Male and Female Nurses Co-operation .. 40
Male Nurses Temperance Co-operation 41
Mental Nurses Association..... 39
Mental Nurses' Co-operation..... 41
New Mental Nurses' Co-operation..... 41
Nurses' Co-operation, Portland-place 41
St. John's House 41
St. Luke's Hospital, E.C. 41
Temperance Association of Male Nurses, Ltd..... 40
Temperance Male Nurses Co-operation 40
The Retreat, York 40

OFFICIAL NOTICES:—
Belt Memorial Fellowships for Medical Research..... 38
City of London Lying-in Hospital 37
King's College, Strand 37
London Homœopathic Hospital .. 38
London School of Massage..... 38
London School of Tropical Medicine 38
North-East London Post-Graduate College..... 38
Queen Charlotte's Lying-in Hospital 37
Royal College of Physicians of London 37
Royal Institute of Public Health.. 37
St. Bartholomew's Hospital and College..... 36
University of Cambridge 39
University of London, King's College 36
York-road General Lying-in Hospital, Lambeth 37

PARTNERSHIPS & PRACTICES:—
Arnold & Sons, Giltspur-street.... 50
Box 487, Strand 51
Lee & Martin, Birmingham..... 50
No. 515, L.O., Strand 51
No. 558, L.O., Strand 51
No. 581, L.O., Strand 51
Turner, Adam-street 50

RAILWAY & STEAMSHIP CO.'S.:—
New Zealand Shipping Co..... 39

TUTORS & LECTURERS:—
Beckton 39
Weymouth 39

For Index to Trade and Miscellaneous Advertisements see page 4.

Experiences IN THE TREATMENT OF TYPHOID FEVER BY STOCK TYPHOID VACCINE.

By H. W. WILTSHIRE, M.A., M.D. CANTAB., M.R.C.P. LOND.,
TEMPORARY CAPTAIN, R.A.M.C.;
AND
A. R. N. MACGILLYCUDDY, M.R.C.S., L.R.C.P. LOND.,
TEMPORARY LIEUTENANT, R.A.M.C.

THIS paper embodies our experiences in the treatment of 50 cases of typhoid fever by means of the stock therapeutic typhoid vaccine supplied from the Royal Army Medical College. The results obtained have convinced us that this vaccine is a most valuable therapeutic agent, although, owing to ignorance and inexperience on our part, it was not used to the best advantage in many cases of this series. Very few of these patients were admitted to hospital in the early stages of the disease. The large majority came down from the front, having been moved from one medical unit to another before we received them. In no case had a dose of vaccine been given before admission, the average day of starting treatment being the eleventh day of disease. Further, they were all soldiers on active service, in whom unusually high mortality and severity of disease are the rule. These factors have militated against the results obtained being the best of which vaccine treatment is capable, and consequently it is fair to infer that it would give much better results under more favourable circumstances.

Series of Cases.

The cases quoted are a consecutive series of 50 in which two or more doses of vaccine were given. Seven of these died, giving a mortality of 14 per cent. Six of these fatal cases were complicated by severe broncho-pneumonia; the seventh died from perforation which occurred at a time when vaccine had certainly reduced the general typhoid toxæmia.

Preventive Inoculation and Vaccine Treatment.

It is impossible to consider the vaccine treatment of typhoid fever in all its aspects in one paper. Previous preventive inoculation, the dosage of this inoculation, and the time (with reference to the onset of the disease) at which it was given, may be found to modify the result of the treatment when a larger number of cases are examined. We have been unable to trace any such modification in our 50 cases, of which 12 were fully protected (i.e., had received two doses within two years), 13 were partially protected (one dose within two years), and 25 were unprotected.

Diagnosis.

In all our cases the clinical diagnosis was confirmed by bacteriological means. In 40 the bacillus typhosus was obtained by blood culture. In seven it was isolated from the fæces. The remaining three cases were uninoculated men who gave a positive Widal reaction, and in two of these the strength of this reaction was found to increase during the course of the disease. Differences in the method of bacteriological diagnosis, as giving evidence of the presence or absence of a marked typhoid septicæmia, appear to be without influence on the result of vaccine treatment, and consequently details in this respect will be omitted in descriptions of single cases.

Types of Cases.

For convenience of description the 50 cases may be divided into classes as follows:—Class I.: Vaccine did harm; 6 cases = 12 per cent. Class II: Vaccine without effect, good or ill; 12 cases = 24 per cent. Class III.: Vaccine did good; 32 cases = 64 per cent. We shall consider these classes in order, taking our mistakes and failures first.

Class I.: Vaccine did harm (6 cases = 12 per cent.).—In three of these cases the harmful effect was due to doses being given with too short an interval (48 hours) between them. They all recovered, the harm done being quite slight. The chart of Case 19 is given in illustration of this point.

CASE 1.—Fully inoculated. Severe case with marked toxæmia and delirium, complicated by some broncho-pneumonia. Vaccine: 250,000,000 on twelfth day. No reaction or result. 500,000,000 on the fourteenth day. No temperature reaction, but pulse-rate rose about 10 beats per minute (average 105–115), and this increased rapidity lasted about five days. Later slow lysis and good recovery.

CASE 7.—Uninoculated. Complicated by much bronchitis. Vaccine: 125,000,000 on fifteenth day; fair result. 300,000,000 on eighteenth day; did good. 500,000,000 on twentieth day caused some rise of temperature and pulse lasting about four days. After this steady lysis and good recovery.

CASE 19.—Fully inoculated. Marked toxæmia and delirium on admission. Vaccine: 125,000,000 on fifteenth day; no result. 250,000,000 on eighteenth day; result slight but good. Pulse steadier. 375,000,000 on twentieth day; no result. 500,000,000 on twenty-second day; result, rise of temperature and pulse lasting three days. (See Chart I. in illustration.) Later recovery was uneventful, except for a slight temporary pyelitis due to bacillus coli.

These three cases illustrate one of the mistakes we made in attempting to learn how to use the vaccine. The usual interval given between doses was three days. It was thought that if no marked reaction or result followed a dose an improved result might be obtained by giving the next dose after a shorter interval. It is evident, however, that an interval of 48 hours only is not well tolerated.

The remaining three cases in which the vaccine appeared to do harm were all complicated by broncho-pneumonia. The apparent harmful effect of vaccine coincided with an extension of the lung affection in each case.

CASE 6.—Partly protected by inoculation. Admitted on sixth day of disease. Marked toxæmia and delirium. Some broncho-pneumonia. Lumbar puncture had been performed the day before admission on suspicion of cerebro-spinal fever, normal fluid being obtained. Vaccine: 200,000,000 on sixth day. Some reduction in temperature, but slow rise of pulse. 300,000,000 on ninth day, followed by rise of temperature and still further rise of pulse, with extension of broncho-pneumonia and increase in toxæmia. Death on twelfth day.

CASE 10.—Uninoculated. Severe case in which symptoms started while suffering from frost-bite. Vaccine: 250,000,000 on tenth day; no result. 350,000,000 on thirteenth day; no result. At this stage bronchitic signs. 500,000,000 on sixteenth day. Temperature higher during next three days, and pulse slowly rising. On nineteenth day symptoms of pleurisy occurred and definite signs of pneumonia obtained. Later gradual increase in pulse-rate and fall in temperature. Death on thirty-first day.

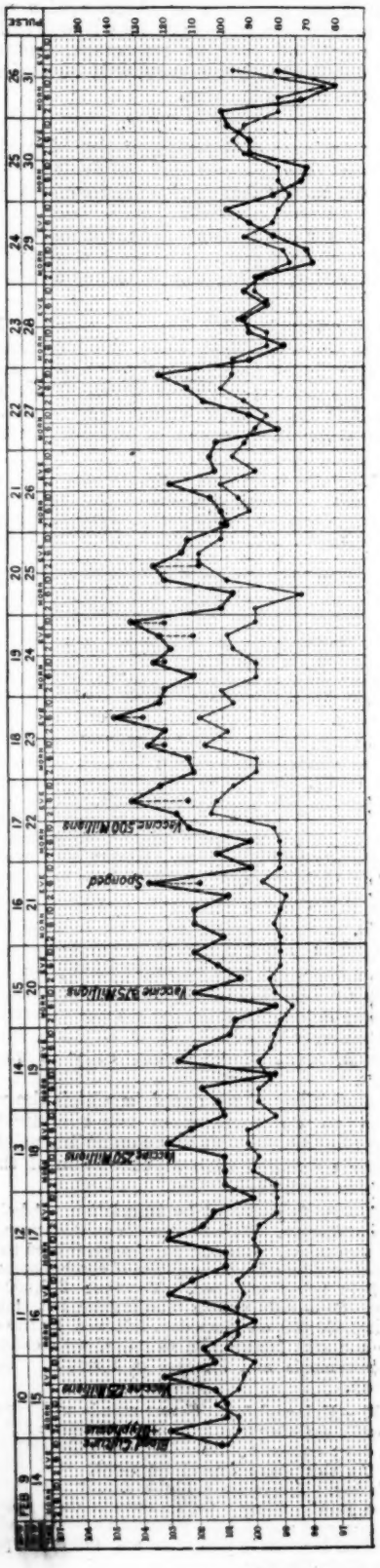


CHART I. (Case 19).

The thick line and the Index on the left denote the temperature, and the thin line and the Index on the right denote the pulse.

CASE 18.—Uninoculated. Admitted on twelfth day of disease with much general bronchitis and commencing broncho-pneumonia. Vaccine: 250,000,000 on thirteenth day, followed by rise of temperature and pulse. 375,000,000 on sixteenth day; still further rise of temperature and pulse followed this dose with steady increase in broncho-pneumonia and general toxæmia. Death on twentieth day.

It might be argued that the extension of broncho-pneumonia and increase of toxæmia which occurred in these cases after vaccine injections were merely coincident; but it was our opinion at the time that the condition was definitely rendered worse by the vaccine.

Class II.: Vaccine without effect, good or ill (12 cases = 24 per cent.).—The cases of this class may be divided into two groups.

(*a*) In five cases the vaccine received a good trial, but appeared to have no effect. As regards general severity of disease, or the stage at which the vaccine treatment was started, these cases did not differ from many in which the vaccine has done good. In all of them, however, the treatment was coincident with a steady increase of bronchitis or broncho-pneumonia. In our opinion this accounted for the apparent absence of action on the part of the vaccine, the increased toxæmia and exhaustion due to the secondary infection of the lung being sufficient to neutralise any good effect that the vaccine might have had.

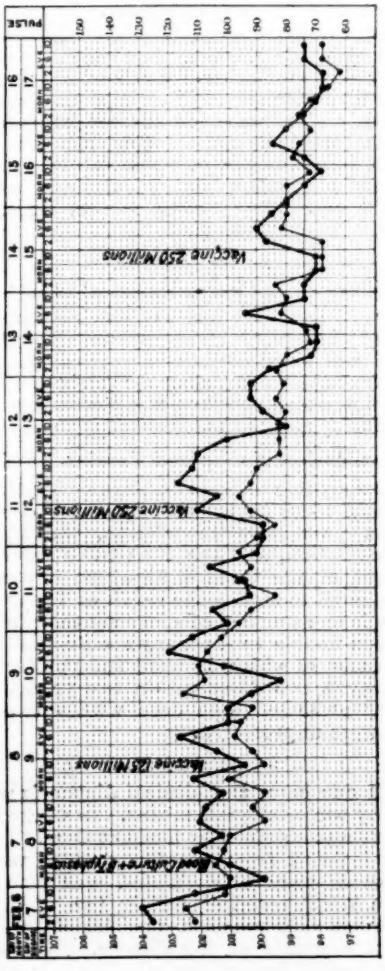


CHART II. (Case 4).

The thick line and the Index on the left denote the temperature, and the thin line and the Index on the right denote the pulse.

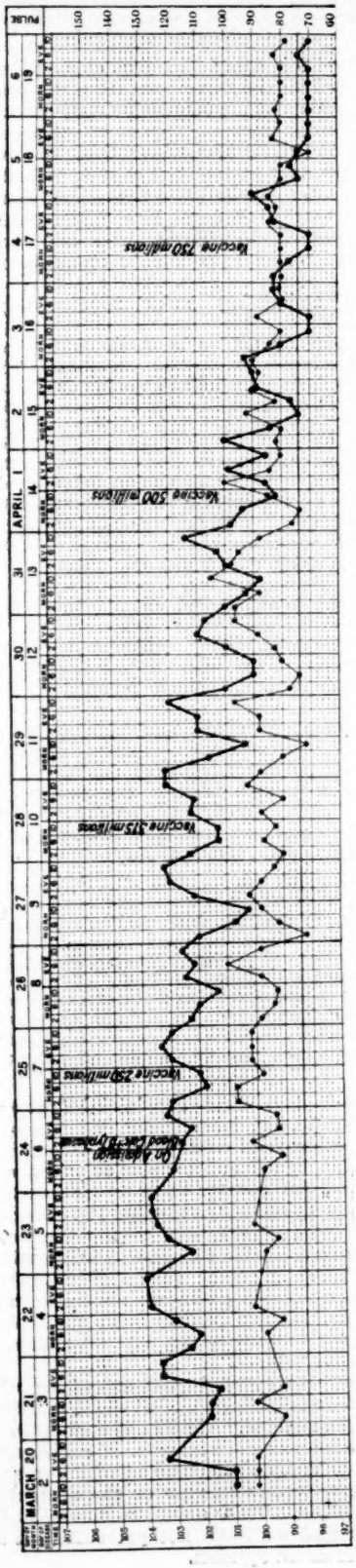


CHART III. (Case 41).

The thick line and the Index on the left denote the temperature, and the thin line and the Index on the right denote the pulse.

CASE 16.—Uninoculated. Severe case on admission on tenth day of disease. Vaccine, 250,000,000 on thirteenth day; no result. 375,000,000 on sixteenth day; no result. Bronchitis marked on eighteenth day. 375,000,000 on twentieth day. Broncho-pneumonic consolidation evident on twenty-first day, and steadily increased thereafter. Death on twenty-sixth day.

CASE 24.—Fully inoculated. Some broncho-pneumonia on admission on sixth day. Vaccine, 250,000,000 on sixth day; no result. 375,000,000 on ninth day; no result. 500,000,000 on sixteenth day; no result. The pneumonic condition increased steadily from nineteenth to twenty-second day, when 20,000,000 pneumococcus (stock) vaccine were given, with immediate good result on pulse, temperature, and local condition of lung. Patient recovered.

CASE 27.—Inoculation one dose during incubation period. Slight general bronchitis on admission on fifteenth day. Vaccine, 250,000,000 on sixteenth day. Bronchitis much more marked and affecting finer tubes between eighteenth and twenty-sixth days. 375,000,000 on nineteenth day; no result. 500,000,000 on twenty-first day; no result. 750,000,000 on twenty-fourth day. Temperature fell by lysis from twenty-sixth to thirty-second day, and patient made a good recovery.

CASE 29.—Inoculated one dose. A severe case, with slight bronchitis on admission on eleventh day of disease. Vaccine, 200,000,000 on twelfth day; no result. 375,000,000 on fifteenth day; no result. 500,000,000 on eighteenth day; no result. Vaccine then stopped because having no effect. Condition remained the same, except that bronchitis increased on twenty-fourth day. 375,000,000 on twenty-seventh day; no

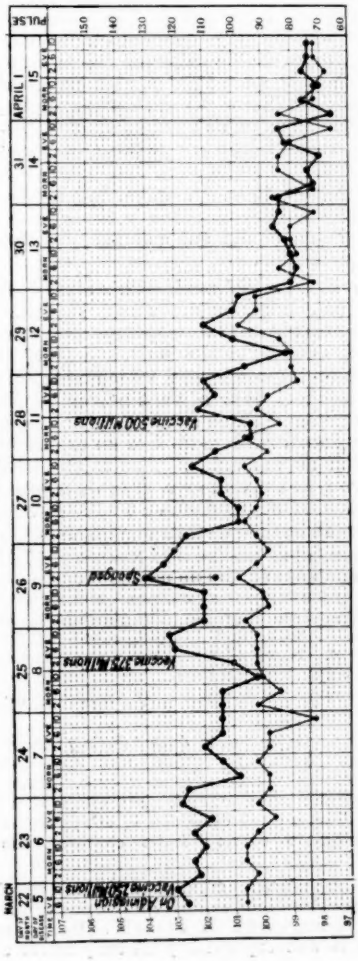


CHART IV. (Case 42).

The thick line and the Index on the left denote the temperature, and the thin line and the Index on the right denote the pulse.

result. Broncho-pneumonic signs on thirtieth day. A day or two later pleurisy, with some effusion on right side. Gradual lysis and recovery.

CASE 45.—Severe case in an uninoculated man. Signs of bronchitis affecting the small bronchi on admission on tenth day of disease. Vaccine, 200,000,000 on eleventh day; no result. 300,000,000 on fourteenth day; no result. 500,000,000 on eighteenth day; no result. Through this stage steady extension of broncho-pneumonia. 500,000,000 on twenty-first day; doubtful good result. 750,000,000 on twenty-fourth day; no result. After this no more vaccine given. Steady lysis from thirty-first to thirty-sixth day and good recovery.

(*b*) In seven cases the vaccine treatment was stopped because of complications. Six of these cases had extensive broncho-pneumonia, two of them being further complicated by hæmorrhage. The treatment was stopped because of our experiences mentioned above. The other case of this class died from perforation.

CASE 39.—Doses of 250,000,000 and 375,000,000 had been given on the ninth and twelfth days respectively and appeared to be causing very marked improvement, when the perforation took place on fourteenth day with fatal result.

The majority of the cases in Classes I. and II. had extensive lung complications, as is shown above. Very few of them, however, produced sputum which could be examined. Those sputa which were examined always showed a mixture of organisms. The pneumococcus, micrococcus catarrhalis, streptococcus, bacillus influenzæ, and diphtheroid bacilli were common, but the pneumococcus was usually the predominant organism present, and the probable cause of the trouble. In other words, as far as we were able to ascertain, the lung complications were always due to a secondary infection, which seemed to find the reactionary period following a dose of vaccine a favourable time for extension, the result being to neutralise the good done by the vaccine against the primary typhoid infection. Hence the six cases in which the vaccine treatment was stopped because of lung complications.

Class III.: Vaccine did good.—This class includes 32 cases (64 per cent. of the whole series). The cases may be divided into four groups as follows:—

Group A.—24 cases (48 per cent. of whole series) showed definite improvement which started after the first or second dose of vaccine, and was continued. The notes of three cases, a fully inoculated man, a partly inoculated man, and an uninoculated man, are given as examples. The charts of these cases are given, as they show a graphic representation of the result of treatment, which is of more value than much description in the text.

CASE 4.—Inoculation two doses in November, 1914. On admission on eighth day of disease clinical condition typical and confirmed by positive blood culture. Some bronchitis. For doses of vaccine see Chart II. The general condition of the patient varied with, and is well expressed by, the temperature curve. Signs of bronchitis had almost cleared up by the fourteenth day of disease. Tendency to frequent undigested motions was controlled by variations in diet. Later progress was uneventful.

CASE 41.—Inoculation one dose during incubation period. Clinical condition typical and confirmed by positive blood culture on sixth day of disease. Some signs of general bronchitis were present. For doses of vaccine see Chart III. The general condition of the patient varied with the temperature curve. Later convalescence was uneventful.

CASE 42.—Uninoculated. Clinical condition typical and confirmed by positive blood culture on fifth day of disease. Doses of vaccine are shown on Chart IV. General condition of patient is well expressed by the temperature curve. Subsequent course: The temperature remained normal for 11 days. A transitory rise then took place, due to orchitis, after which convalescence was uneventful.

Group B.—Five cases (10 per cent. of whole series) showed no improvement from the first two doses of vaccine, but were definitely improved by doses following these. Three of these cases (Nos. 25, 28, and 48) differed from those of Group A in this respect only—namely, that the good effect of vaccine was later in manifestation. One was complicated by marked general bronchitis, the other two had general bronchitis, and one or two small areas of broncho-pneumonic consolidation in addition.

The two remaining cases require separate mention:—

CASE 43.—Uninoculated. A severe case with bronchitis. Positive blood culture on fourteenth day of disease. Vaccine, 250,000,000 on fourteenth day; no result. 375,000,000 on seventeenth day; no result. 375,000,000 on twentieth day; fair result. 500,000,000 on twenty-third day; good result. 750,000,000 on twenty-sixth day; fair result. 1,000,000,000 on twenty-ninth day; no result. The total febrile period did not appear to be shortened by the vaccine, but we considered at the time that the vaccine kept the temperature at a lower level and lessened the general toxæmia.

CASE 11.—Uninoculated. Blood culture positive on admission on eleventh day of disease. Vaccine: doses of 250,000,000 on the twelfth and fifteenth days of disease appeared to do little, if any, good. 375,000,000 on eighteenth day and 375,000,000 on twenty-first day caused definite improvement. In the meantime pleurisy with effusion developed on the right side, and pure bacillus typhosus was grown from the clear fluid obtained by exploration. Later a true typhoid relapse occurred.

In this case vaccine undoubtedly reduced toxæmia and increased the general immunity for the time being, without, however, establishing the latter completely or affecting the local pleural condition.

Group C.—In one case vaccine was not used until the later stages of the initial fever.

CASE 23.—Diagnosis was not made until the seventeenth day of disease, when bacillus typhosus was isolated from the fæces. No vaccine was given until the twenty-third day of disease, when the temperature was keeping about 101° F. and showed no signs of settling. Vaccine, 250,000,000 on twenty-third day; caused some reduction of temperature. 375,000,000 on twenty-eighth day; caused a brisk reaction and a swinging temperature. 500,000,000 on thirty-first day; caused a slight reaction, followed by rapid defervescence, the temperature remaining normal after the thirty-third day.

Group D.—In two cases the initial doses gave very good results, but later doses (in one case the third, in the other the fourth) appeared to coincide with the beginnings of intercurrent relapses, which ran an unmodified course. The vaccine certainly did good in these cases by reducing the severity of the initial febrile period, thus saving the patient from much toxæmia with consequent exhaustion.

We have recently, since this series was completed, had two more cases which have run a similar course, vaccine having done good during the initial fever, but appearing without effect upon the intercurrent relapse.

It is difficult to estimate the extent to which auto-inoculation is taking place at the beginning of an intercurrent relapse. We do not even know the exact mechanism of such a relapse. In consequence, it is hard to determine the time at which to give a dose of heterogeneous vaccine or the size of the dose to be given. This question needs further investigation, and we have not yet sufficient data on which to form an opinion.

Comparison of Classes.

An analysis of these classes and groups of cases, with the object of discovering why some cases did well and others badly, yields some results. If we take Group A of Class III., which contains cases giving the best result, and constitutes nearly half (48 per cent.) of the whole series, and analyse it as regards prophylactic inoculation, means of bacteriological diagnosis, and stage of disease at which vaccine treatment was started, we find that it shows no essential difference from the other classes of the series in any of these respects.

This is shown in the following table, in which the figures are expressed in percentages:—

—	Inoculation.			Bacteriological diagnosis.			Date of starting vaccine.
	2 doses	1 dose.	Nil.	Blood culture.	Fæces.	Widal.	
Whole series ...	24	26	50	80·0	14·0	6·0	11·0
A Cases ...	25	29	46	70·8	20·8	8·4	11·2

These figures approximate so closely that it is impossible to point to any one of these factors as bearing a material reference to the result of vaccine treatment.

An analysis of complications, especially of lung complications, does, however, reveal points of difference. The slight bronchitis which occurs in practically every case of typhoid fever is not counted as a complication. This is seen in the following list:—

	Per cent.
Cases that did very well (Class III., A Group)—	
Free from lung complications	66 6
Bronchitis	8·3
Severe bronchitis	8·3
Marked pneumonia	16·6
Cases that did well (Class III., B Group)—	
Free from lung complications	33·0
Severe bronchitis	33·0
Bronchitis with slight broncho-pneumonia ...	33·0
Cases in which vaccine had no effect (Class II.)—	
Free from lung complications	*Nil.*
Severe bronchitis	20·0
Marked broncho-pneumonia	80·0
Cases in which vaccine was stopped for complications (Class II.), (excluding the case which died from perforation)—	
Severe broncho-pneumonia...	100·0
Cases in which vaccine did harm (Class I.), (excluding those in which this was definitely due to too frequent dosage)—	
Severe broncho-pneumonia	100 0

It is naturally impossible to make a dogmatic rule against which no exception can be brought, but we may roughly sum up the above results by making the general statement that vaccine treatment has been more useful in proportion as the cases treated have been more relatively free from secondary infections of the lungs. The figures given in the above list only confirm our personal impressions in this respect.

Relapses.

Somewhat contrary to expectation, it was found that the cases which did best with vaccine showed an unusually large percentage of true relapses. This occurred in 5 of the 24 cases in A Group, Class III. = 20·8 per cent. These relapses were not severe, but the mere fact of their occurrence shows that although sufficient immunity had been produced to neutralise the initial infection this immunity was of brief duration and insufficient to combat a fresh infection taking place from the intestine or possibly from a latent focus in the body.

In all these cases vaccine treatment had been stopped as soon as the initial fever was ended. With the object of trying to prevent these relapses we started to continue the vaccine for three doses after the temperature had become normal. Owing to the decrease in number of cases which occurred about this time we have not sufficient data to say whether this method will prove successful.

Reactions, Intervals, and Dosage.

In all these cases, with but few exceptions, we gave an interval of three days (72 hours) between doses. As stated above, we found that shorter intervals were not well tolerated. A reaction usually followed each dose, in the form of a rise of temperature of between 1° and 2° F., accompanied by an increase of pulse-rate of between five and ten beats per minute. This rise of temperature and pulse generally came on within four hours, and settled gradually within the next 12 hours. The local reaction was usually slight and negligible.

On several occasions a longer interval has been given between doses. Somewhat to our surprise we have found that the longer the interval given the more susceptible the patient seems to the next dose. As an instance of this we give the chart of Case 26 (Chart V.)—an uninoculated man in whom the clinical diagnosis was confirmed by a positive blood culture. As can be seen, a good result was obtained in the initial fever, which was much reduced, though it was never entirely stopped. A rather excessive reaction is seen on the twenty-fourth day, due to the slight increase in dose after a four-day interval. Following the reaction from this dose the temperature was lower for four days. Then irregularities occurred again, and so on the thirty-third day (after an interval of nine days) a smaller dose was given. The temperature and pulse reaction from this is seen to be excessive, but followed by a good result.

If this increase of reaction had been observed in one or two instances only the chance coincidence of auto-inoculation occurring at the same time as the dose of vaccine could be advanced as an explanation; but in our experience it has been a regular occurrence, so much so that we have roughly come to be guided by the rule that if the interval between doses is as much as four days the dose should not be increased, and if it is over four days the dose should be reduced.

Our usual practice now is to start with a dose of 250,000,000 at the earliest possible moment, in any case where a reasonable suspicion of typhoid fever exists. We have given many doses to patients who have been subsequently proved not to be suffering from typhoid fever, especially to many patients suffering from paratyphoid fever, but we have never in any case seen the least harm result. If the diagnosis is confirmed, or the case continues to look suspicious, doses are continued at intervals of three days, 375,000,000 being given for the second dose and 500,000,000 for the third. Subsequent doses are increased by a regular addition of 250,000,000. When very marked toxæmia with hyperpyrexia or lung complications are present this dosage is reduced. When the temperature has become normal the last dose given is repeated three times in order to guard against relapse. If an interval of four days is given the dose is not increased; if an interval of over four days is given the dose is reduced, even, in some cases, as after a ten-day interval, right back to the initial 250,000,000.

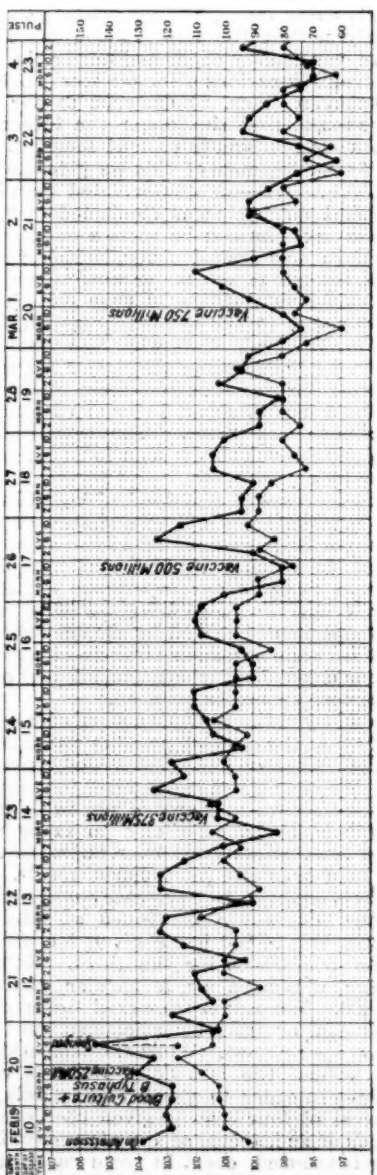
Indications for Dosage.

Various factors have to be considered in estimating the good or ill that vaccine is doing for a patient, the need of a dose, or the size of a dose to be given. The general aspect and condition of the patient are most important, as they represent the total result of the combination of many elements. Among these elements it is necessary to try to estimate the signs and symptoms of toxæmia actually present at the time a dose of vaccine is proposed, as apart from those which are the result of toxæmia which is past.

The nervous condition of the patient yields a rough measurement of actually existing toxæmia in the early stages of the disease, in which delirium is always accompanied by high fever. Even here difficulty arises from the fact that allowance must be made for the natural nerve calibre of the individual, an unknown quantity which can only be guessed at. In the later stages the mental condition is quite unreliable in this respect, because it is then due to the injury undergone by the nerve cells in the past, as well as to the poisoning they are subject to at the moment. The patient who remains in a dull delirium, passing urine and fæces into the bed, for some days after all toxæmia has obviously been neutralised is far from uncommon. In consequence the nervous condition does not form a good single indicator for or against vaccine.

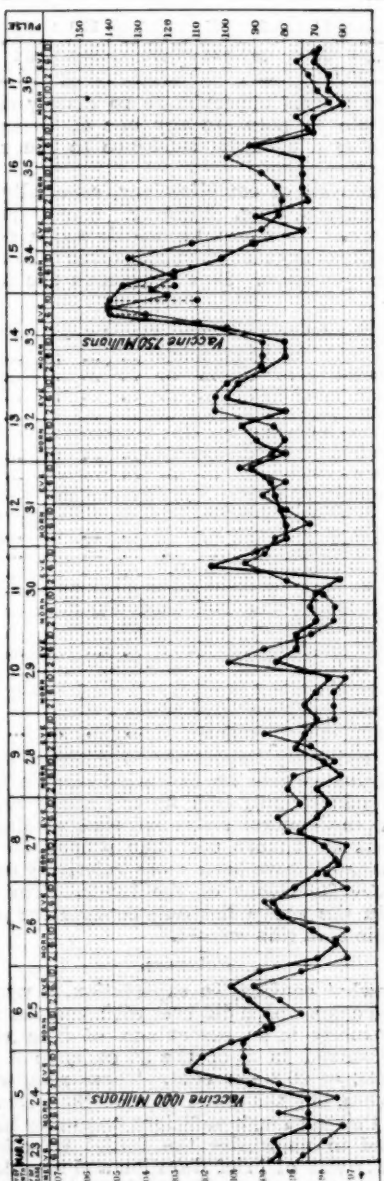
The same argument applies to the pulse. At any stage of the disease the pulse is an expression of previous damage to the myocardium as well as of present poisoning. This is well exemplified by the comparatively slow pulse-rate of the earlier stages,

CHART V. (Case 26.)



[*Continued under.*

Continued from above.]



The thick line and the Index on the left denote the temperature, and the thin line and the Index on the right denote the pulse.

the gradual rise in later stages in a severe case, and the tendency to marked increase in rate from very slight causes during late convalescence.

In practice we have found the temperature the most reliable single indicator of the degree of toxæmia actually present. It has the advantage that it is a physical sign capable of exact mensuration and expression. Except in the case of an obviously moribund patient, or for a short period after the mechanical accidents of perforation or hæmorrhage, it gives an accurate representation of the degree of toxæmia present, unmodified by what has taken place in the past. In complicated cases, especially those with lung complications, the extent to which pyrexia and toxæmia are due to secondary infections must be considered.

General Considerations.

The general result of treating these 50 cases has been to convince us of the value of vaccine treatment to such an extent that we should now regard the withholding of vaccine from a suitable case in the early stages as an unjustifiable experiment.

We have had no experience of living vaccines, and practically none with autogenous vaccine, and cannot express an opinion as to their merits as compared with stock vaccine. The latter has the advantage that a dose can be administered without delay.

The results obtained, and the power and limitations of vaccine which we have found in clinical work, are only such as theoretical considerations should lead us to expect. In the earlier stages its use as a direct antagonistic to the pure typhoid infection is obvious. At the same time it may be regarded as a powerful prophylactic agent against secondary infections. The latter find their opportunity in the lowered resistance of the body caused by the typhoid toxæmia. The vaccine, by diminishing or completely ending this toxæmia, may prevent the opportunity for the occurrence of secondary infection altogether.

Once secondary infection has taken place, a dual toxæmia has to be fought, and it is not to be expected that a vaccine specific for one organism can neutralise both. It can still help by tending to neutralise its own antagonist—the primary infection—but in this there is a risk, as we found in some cases, that the reactionary period may be favourable for an extension of the secondary infection. Hence in these cases a marked reaction must be avoided by care in dosage, and, when possible, a specific antagonistic must be provided to fight the secondary infection. This view is strongly supported by the good results obtained in some recent cases by the use of typhoid vaccine and pneumococcus vaccine combined.

Conclusions.

1. Stock typhoid vaccine is a valuable therapeutic agent for the treatment of typhoid fever.
2. The treatment should be started as early as possible with an initial dose of 250,000,000.
3. A reasonable suspicion that a patient is suffering from typhoid fever is sufficient indication for commencing vaccine treatment.
4. The treatment is quite harmless to patients who may subsequently be proved not to be suffering from typhoid fever.
5. An interval of three days should be given between doses. Shorter intervals are not well tolerated. When a longer interval is given, if four days the dose should not be increased, if over four days the dose should be reduced.
6. Great care must be used in dosage if secondary infections of the lung are present. If possible, the typhoid vaccine should be combined with a vaccine suitable for the secondary infection.
7. Doses should be continued for ten days after the temperature is normal as a preventive against relapse.
8. Preventive inoculation exerts slight, if any, influence on subsequent vaccine treatment.

ON NERVOUS FURRING OF THE TONGUE AND DISTURBED TASTE.

BY SIR JAMES GOODHART, M.D., LL.D. ABERD., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

I HAVE often said, and there can be no doubt of its truth, that the practice of medicine conduces to the development of fads and faddists; to the belief in Authority that has no assured being. Its aim, the intense desire to outwit all sickness, supplies an explanation, and even, I venture to think, a valid excuse, for this. None the less, the obsessionist is a great hindrance to the continuous march of progress, and this undue power that a statement of a master—made upon quite insufficient evidence—possesses, unfortunately tends to become a snowball, weightier and weightier as it rolls along, from the impact of which, even in one's sanest moments, it is hard to escape.

Nor is it Medicine only that is thus a slave to Authority. All religious beliefs probably partake, spreading as they do into the regions of the as yet unknown, more or less of this weakness. A statement is made and earnestly taught year after year, age after age, until it becomes indelibly engraved and driven into the mechanism of thought. The spirit of the present German stock that has evoked all the horrible atrocities of this great war is another instance of it. A nation bred up for 50 years—man, woman, and child—in the belief that it is the all-powerful one, not only in might of physical force, but of intellect, assiduity, and organic blending, has come to believe, nay more, as it thinks, to *know* it, and could hardly help itself, and it will be no easy matter to breed it out again either.

But to go from lofty subjects to a lowly illustration, and my present subject, the furred tongue of medicine is hampered by a like obsession. For I suppose that there is no more ineradicable idea in the mind of the doctor than that the furred tongue is essentially an indication of a deranged stomach, and it is probably an attempt to kick against the pricks to say otherwise. That a dirty tongue is an indication that the liver is out of order, and that a purge of some sort is the one and only remedy, will, I suppose, never cease to be thought as long as the world lasts, and in a fair proportion of cases I am not prepared to traverse the practice. But it is by no means always so, a dirty tongue does not always mean a foul stomach, and there is always scope in the vision for interesting thought and inquiry.

It is not usual to give the sermon before the text, but I have partially done so in this instance, for it has originated in the following case.

A man, aged 39 years, complained of a dirty tongue, and always a nasty taste in his mouth. He ascribed it to the bite of an insect a year ago that was followed by what had been called bad blood

poisoning, from which he had been laid up some three weeks. He had, however, been deaf in one ear some ten years or more. For this and his throat he had had much treatment, so that one cannot exclude his throat altogether from his present complaint. At any rate, since the onset of his buccal disturbance he must have expended much of his leisure time in doing this, that, and the other thing to get rid of the persistent taste in his mouth. He has been to quite a long roll of doctors, until now he is assured by specialists that his throat is absolutely healthy. The facial sinuses have been examined and cleaned out. and they have been passed as sound. He has even been pronounced by his dentist, and I think the bacteriologist, free of pyorrhœa. His dentist, bold and upstanding man, is even prepared to swear that with a platinum plate in his mouth it is not his teeth that are the cause of his bad taste; yet is he plagued and pursued by it still. Finally he had been under the care of several physicians, who each of them in one secretion or another, according to his bent, had thought to light upon the illuminating track, but no! All came to nothing when he asked for *cure*.

Hearing all this, how could I do otherwise than with candid automatism let fall the remark: What chance is there for me? And inwardly I wondered whether it were possible to give him any "quo" for his "quid."

This calls in question the man himself, so to begin with I may say that he seemed to be about the fastest talker I have ever struck; he was a very hard, and I should judge successful, worker, and altogether a distinctive personality. He evidently works to the full limit of his tether by day, is a lonely man when off duty, and spends his hours of recreation in rushing about the country on a motor cycle. He is most abstemious, almost morbidly so in diet, takes no drinks, cleans his teeth after every meal, and keeps himself fairly well, as he considers, by scrubbing his tongue in the early morning with his toothbrush. He is evidently a man of taut temperament and abounding energy, who plays out every ounce of it, and to this view of him he assents. He is in a very responsible position, a leader of men, to whom he has to say "Do this" amid murmurs of discontent, so that all day long he is wearing his gears, and therefore he has somewhat restless nights and wakes with a dirty tongue in the morning.

Now, the explanation that I offer him, and which seems to me almost the only one that will apply to such a case as this, is that the furring of the tongue and the nasty taste in the mouth are alike caused by some disordered state of nerve control, and if due to stomach at all are only indirectly so, and that therefore the cleaning of the *primæ viæ* so often fails in curing them.

Some years ago I was asked to see a young man of perhaps 20 to 25, whose malady was a persistently furred tongue that nothing had sufficed to dissipate. It was now proposed to do some surgical operation, I forget at the moment what—it was, I think, before the advent of colectomy—it may have been the removal of the appendix. However, constipation being in part the trouble, and there being some question about the action of the sphincter ani, this led, I think, ultimately to the stretching of that muscle in lieu of anything more serious. I could find nothing the matter with the man save that he was pasty in appearance, perhaps mildly hypochondriacal, and a bit of a slacker. Talking to the father of the patient afterwards I ventured to air my opinions about fur on the tongue, and said that I thought it was as often caused by the head as the stomach, which, as he had evidently gone to a good deal of trouble and expense to provide his son with a clean tongue, evidently annoyed him, and I have no doubt that he inwardly considered me a fool. "How could a dirty tongue come about in such a manner?" and this is the attitude of many a, not only layman, but doctor also. Tongue, liver, purge, are all pigeonholed together, and they all three tumble out together when "tongue" is rung up.

But tongue is an exchange for many terminals, and one must take care to get to the right one. Nervous furs and nervous tastes are common enough, and they demand a special thought. Years ago in the wards of Guy's Hospital, under our old and still memorable teacher John Hilton, I remember noticing in cases of fracture of the base of the skull—by which cases Hilton always seemed to be specially interested—how soon a foul tongue and fœtid breath are developed, and in later years I have noticed a similar phenomenon in cases of hemiplegia. Obviously, this may be due to various causes: to liquid food hanging about the mouth and decomposing; the teeth under the circumstances cannot be attended to; the movements of the tongue and palate are impaired, and the mucous membrane and such bacteroid bodies as the individual sets out with, fail to be collected and distributed to the various destructors. But allowing for all this, I am still of opinion that its rapidity of occurrence needs something more, and I find it in the loss of nervous control over the natural processes that in health tend to keep man sweet and wholesome. The parts become fevered, the mucous membrane dry, the nerves irritated, and taste is perverted. The *fons et origo* are not bacterial, they come of the nervous arrest of natural processes.

To support this contention one can appeal to the early history of certain cases of cerebral disease, such as tumour, that may sometimes first declare itself by derangement of smell or taste; an epileptic aura may manifest itself in a like fashion, and it seems to me that these tongues and tastes are a still more common occurrence in the nervous, anxious subject who works hard, takes his work home with him, and to bed; who dreams much and grinds his teeth in his too active and seething unconscious cerebration.

And so it will be found, if this idea be followed out, that in many milder conditions amidst the fringes of disease yet of the very substance of the symptoms of functional disease or nervous disturbance a dirty tongue and an unnatural taste are manifestations of the commonest.

I might even carry my argument further, and say that what applies to the mouth does so also to the entire digestive tract, and even to dirty bowels. We are so much belaboured now by toxins and their "antis" that we have no energy left to think on other lines; but it is really astonishing to anyone who has eyes to see and ears to hear what a huge proportion of all the sufferings from mucous colitis (dyscolorrhœa?), proptosis of the abdominal organs, and intestinal stasis, not to mention the horrible squirms and other sensations that have a much more real existence, emanating as they do from our centre of happiness, if not of life, occur primarily and conspicuously in the neurasthenic. If only we could substitute a continuous flow of nervous energy for the poor and miserably

intermitting one the surgery of to-day would be robbed of half its brilliancy. We all labour under the authority that teaches that constipation is the cause of lunacy. I have known of the colon being removed for its cure. I will not go so far as to say that this is never true, but I will say what is perfectly certain, that insanity in its oncoming *causes* constipation—in an action of the bowels much virtue goes out of a man, neurasthenics by the hundred could tell of it—and I venture to doubt whether it is ever the other way about. One can see, of course, that the whole question of oral and intestinal sepsis abuts here, but for the now both it and the colon are beside my purpose. Fur on *some* tongues is the subject with which I started, one of the common objects of the sick shore, and as interesting as it is common. But perhaps this is a "fad" on my part, yet I read that "Quinney squirmed at the remote possibility of being merged and lost. He muttered uneasily: 'It fair furs my tongue to think o' that.'"

Two questions might perhaps be put to me as I close: (1) Did the explanation of my text's tongue carry conviction to his mind? and (2) Has it cured him? As to the first, he was certainly, for the time, satisfied as to the rationality of the explanation offered him. Whether he will be cured or not even I may be permitted to doubt, for it is a sad but true piece of human experience that so many a sick man feels himself safe when vis-à-vis with his doctor, who later becomes prone to dwell upon his loneliness if he be unaccompanied by the customary bottle of physic.

Portland-place, W.

THE PLEOMORPHISM OF THE MENINGOCOCCUS.

BY ALEX. LUNDIE, M.B., CH.B. EDIN.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS;
D. J. THOMAS, M.R.C.S., L.R.C.P. LOND., D.P.H. OXON.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS;
AND
S. FLEMING, M.B., C.M. EDIN., D.P.H. CAMB.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

THE pleomorphism of the meningococcus is a fact that must be admitted by everybody who has had any experience at all in working with this organism. Its tendency to assume involution forms very early on solid media is a thing that cannot fail to be noticed, and it is a useful fact to remember as a point of diagnostic value. Recent observers have gone so far, however, as to suggest that the meningococcus is not the cause of cerebro-spinal meningitis, but anyone who can see beyond the surface of things must feel that these writers have not as yet displaced the meningococcus entirely. The discovery of the well-known meningococcus in the great majority of a series of over 200 cases of the disease might not quite satisfy the most rigid of statistical requirements, but it cannot be considered as unimportant. Several of the series showed the presence of other organisms, and there appeared to be a seasonal incidence in the prevalence of such cases. Some were extremely fatal, and though never exhibiting meningococci in the usual situations, they were found on post-mortem examination to have died from cerebro-spinal meningitis. Whether this was to be regarded as a form of the "epidemic" disease or another specific entity was a point for very serious consideration.

Great help was derived from a study of organisms associated with the meningococcus in situations other than the spinal canal—viz., the throat and the blood. It had long been observed in these investigations that nearly every person who was a carrier of meningococci had a naso-pharyngeal catarrh, and that certain "streptococci" were found in such cases on so many occasions as to be probably more than a mere coincidence. Attempts to cultivate these "streptococci" showed that they were extremely variable, delicate, hard to propagate, and showed a great tendency to give rise to involution forms. "Zeppelins" and "bombs" are the most apt descriptions of some of these extraordinary forms, and other workers seem to have encountered them in the blood as "clubs and points of exclamation." Occurring in the naso-pharynx and in the brain they are Gram-positive, but tend on long subculture to become Gram-negative. Encountered in the blood they are less definitely Gram-positive, sometimes frankly Gram-negative, and tend also to become quite Gram-negative after sub-culture. Our experience differs from that of other people, in never having succeeded in discovering them in any case where meningococci existed in the cerebro-spinal fluid, but they were sometimes seen with meningococci in the naso-pharynx and in the blood.

In certain cases which clinically were meningitis, and where meningococci were demonstrated eventually in the blood, there were found at an earlier date in the blood also bipolar organisms, which consisted of two Gram-positive dots joined by a Gram-negative line of extreme fineness. These, of course, would readily be mistaken for Klebs-Löffler bacilli, stained by Neisser's stain, but when this stain was actually applied it definitely failed to stain the dots. These forms usually died out with great rapidity, and usually failed to give anything more than the minutest pin-point colourless colonies on solid media, but sometimes, however, developed into Gram-negative diplococci.

Other organisms discovered in such cases were like Hofmann's bacillus. If the blood was examined six hours after being inoculated in broth they would contain two to four segments. On a further inoculation on solid media they would grow out into long segmented forms, caterpillar shapes, which showed alternate stripes of pink and violet when stained by Gram's method. They failed to show such differentiation with Neisser's stain, but occasionally with Gram's stain they showed a most beautiful mottling. The long striated forms (it would be better to say "striated" always instead of "segmented") were obtained by cultivation along normal lines, and if diplococci appeared later they could hardly be taken as developmental forms of these, but rather as arising from a common ancestor which had not been noticed in the blood. The shortest forms, however, when left in fluid media seemed to be able to pass directly into diplococci by the fission of each stria and the breaking up of the whole into a mass of diplococci.

If the very short parent Hofmann forms were plated on two different media and kept in parallel series, it was found possible to make one into

FIG. 1.

Streptococcus pugnax from a throat swab.

FIG. 2.

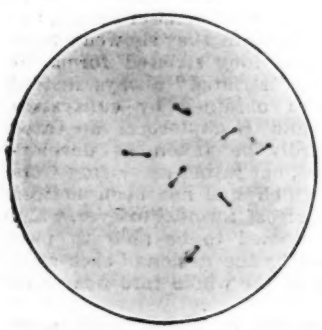
"Zeppelins and bombs" obtained from the brain of a case who died undiagnosed with acute abdominal symptoms.

the long caterpillar type and the other into a Gram-negative diplococcus, both giving the sugar reactions of the meningococcus. The method adopted in the latter case was to smear the surface of the serum agar heavily with trypsin solution, so attempting to imitate the process occurring naturally in a septic throat or a suppurating wound.

The extravascular type of organism encountered is the chain-like nostoc form with heterocysts. We have previously called it a streptococcus. It is extremely pleomorphic, and develops a large round cell in the middle or a large fusiform cell at the end of the chain. These heterocysts, as they might be permitted to be called for the present purpose, sometimes persist, while all the small round streptococcal elements disappear, and the familiar appearance of "Zeppelins and bombs" is then seen. The "Zeppelins," to say the least, are the homologues of the caterpillar and Hofmann element found in the blood, and are identical with the forms found in the brain. The "bombs," on the other hand, are homologous with some of the ordinary involution forms found in plate cultures of the meningococcus, and with the strange forms produced by growth in MacConkey's triple-strength glucose. These latter cannot be identified by the usual methods as meningococci. (The meningococcus in certain old cultures shows a tendency to grow out into filaments.)

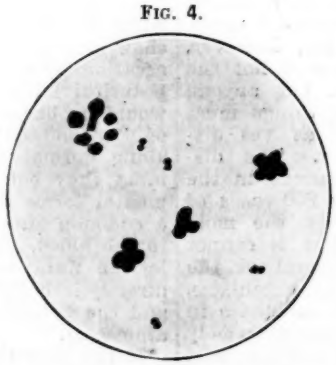
If these facts are to be taken as anything more than a strange collection of ill-digested observations, they may be held to give a clue to the evolutionary descent of the meningococcus. The "streptococcus" recalls the nostocaceæ, it closely resembles the hormogonium of the ordinary nostoc, while the "Zeppelin" recalls the familiar teleutospore of the æcidiomycetes. There is, no doubt, a long vista of time between these extremes, but it is a recognised principle of evolution that "ontogeny is phylogeny," that the individual in its development recapitulates the life-history of the species. And if we venture further to apply this principle it may ultimately explain the seasonal incidence of epidemic diseases in general.

FIG. 3.



Pseudo-diphtheroids obtained from blood.

FIG. 4.



Meningococci; MacConkey's triple-strength bile-salt glucose broth.

FIG. 5.

"Caterpillar forms"; trypsin broth, legumen, hæmoglobin agar.

NEURASTHENIA GASTRICA.

BY J. CAMPBELL McCLURE, M.D. GLASG.,

PHYSICIAN TO OUT-PATIENTS, FRENCH HOSPITAL, LONDON; PHYSICIAN TO THE MARGARET-STREET HOSPITAL FOR CONSUMPTION; LATE ASSISTANT TO THE PHYSICIAN TO OUT-PATIENTS, MIDDLESEX HOSPITAL.

IN choosing the title of "Neurasthenia Gastrica" for this paper I have been encouraged to revive an old title by the fact that for some years past I have encountered in considerable numbers a type of neurasthenia associated very definitely with gastric and intestinal symptoms. I do not mean to imply by the term "neurasthenia gastrica" that the neurasthenia associated with such symptoms is of necessity produced by a primary gastric fault, nor am I in any degree deterred from the use of the title by the consideration that the word "gastrica" will not necessarily imply gastric disturbance as a primary event, but merely the existence of such disturbance as part of the clinical picture. The term "neurasthenia" itself is one which denotes no more than a group of symptoms, without any precise indication of the manner in which these have been produced or of their mutual relation. We have no evidence at our disposal that nerve exhaustion is a primary disease. It is an ordinary and well-known fact that in different people the same toxæmia produced by the same micro-organisms will produce symptoms widely diverse, according as one or other group of organs may be in one or another class of people especially vulnerable to the results of infection. For example, a chronic intestinal stasis with a toxæmia due to an abnormal growth of the B. coli communis may be expressed in one individual by headache, lassitude, and malaise, and other symptoms referable entirely to the nervous system; in others by some disorder of the skin; in a third class by premature degeneration of the cardiovascular system; while in yet another group the lesions secondary to such a toxæmia may be entirely confined to peri-articular structures.

It is well, I think, to realise from the outset that the condition which we describe as neurasthenia is in all probability due to a disturbance of the normal balance of the internal secretions, which loss of balance may be the result of some overaction or underaction of one or another of the great groups of ductless glands, either from an inborn tendency or as the result of some outside influence, whether nervous or toxic. It is a matter of common knowledge that, short of the condition which we know as myxœdema, there are many people, both male and female, who at certain periods of life manifest a series of symptoms, both physical and mental, which warrant their being classed superficially as neurasthenics, but who after more careful observation have to be classed as persons suffering from a certain amount of thyroid insufficiency or hypothyroidism. Similarly, the excitable, neurotic person, easily tired, easily disturbed emotionally, whose flushed face, rapid pulse, and general excitability mark her off from the rest of her family, is now recognised not as a neurasthenic of unknown origin, but as suffering from hyperthyroidism and as a near relation to the subject of Graves's disease. So, with our increased knowledge of the action and interaction of the internal secretions, fewer and fewer cases who suffer from unlabelled functional disorders will be thrown upon the rubbish heap of modern ignorance which we are pleased to call neurasthenia.

In connexion with the study of neurasthenia gastrica it is interesting to recall the original meaning of the word "hypochondriac." The term was at first applied to people who experienced discomfort in the hypochondrium. When the study of morbid anatomy became general, and the physicians of that time concentrated their attention on diseases which showed some gross lesion, and lost interest in the "functional" disorders, the hypochondriac who showed no evident lesion was classed as a *malade imaginaire*. Since then the word "hypochondriac" has grown to mean a paranoiac whose fixed idea is that of ill-health, a mental and not a somatic condition. Such paranoiacs are not uncommon, but one finds every now and then unfortunate people who have been so far labelled paranoiacs as to be kept under observation in a mental home, whose nerve exhaustion and fixed idea have had their origin in a very definite gastric lesion. All gastric neurasthenics—that is to say, persons who in addition to the ordinary symptoms of nerve exhaustion have definite gastric discomfort—suffer more or less from uneasiness in one or other hypochondrium, for the most part the left, but not infrequently the right, and it is my experience that the majority of these unfortunate people are at the outset of their illness, at least, considered to be *malades imaginaires*, fantastic persons who, while not being really ill, rather enjoy the sensation of illness, and a great number who have come under my personal observation have previously suffered much because they have been regarded as people who could be well but would not, and who suffered "merely from nerves." It is quite true that in a certain number of cases the bullying process so frequently employed is tolerated by a patient who, naturally strong, is able to help himself or herself by a certain exercise of what the advocates of the "Higher Thought" are pleased to call Will, but in the majority of cases such treatment tends only to the increased depression of the patient.

The train of symptoms associated with neurasthenia gastrica is curiously constant. Patients complain of being easily tired, both physically and mentally. Inability to concentrate attention on work which was at one time easy for them is a frequent trouble. Memory tends to become capricious. Headaches, either of a dull, heavy kind with a frontal distribution and worse in the morning, or sudden bouts of migraine-like disturbance, are very common. A certain uneasiness in the left hypochondriac region, occurring at varying times after food and in the evening, either with or without a feeling of distension in the left hypochondrium and epigastrium, is a very usual experience. At times the gastric symptoms are obtrusive, so that a patient may complain of frequent attacks of nausea and almost constant burning in the region of the stomach, especially one to three hours after food, while flatulence may become so great as to be a social nuisance. It is not uncommon for the patient to suffer from a sensation of obstruction on an attempt to swallow food, especially at the beginning of a meal, and this sensation of obstruction is often associated with a feeling of constriction in the chest and a dragging sensation in the neck. Sometimes it is also accompanied by profuse salivation. Constipation is the rule, but is not invariable. Cardiac symptoms are very common. Attacks of palpitation often occur, produced sometimes by exercise, especially immediately after food, but more often coming on without any apparent cause, while the

patient may be resting quietly in a chair or in bed at night. Præcordial pain is not at all uncommon, and certain patients suffer from attacks of heart pain which resemble the sufferings of true angina pectoris Sleeplessness is common and the character of the insomnia is very typical. In those who go to bed early sleep as a rule comes quickly, but early in the morning, say between 2 and 3 o'clock, sleep is broken, and indeed the patient may become wakeful for the rest of the night. In those who go to bed late, say after midnight, and who have not eaten since dinner, sleep may come slowly, and when it does come is often disturbed and may only become sound towards 6 or 7 in the morning. In the case of patients who have taken something to eat between dinner and bedtime sleep comes quickly although they go to bed late, but they tend to waken some two or three hours after going to bed, and spend the rest of the night wakeful and uncomfortable. In many cases the wakefulness is definitely induced by gastric discomfort, but many patients have this particular type of insomnia without any conscious discomfort in the region of the stomach. Gastric neurasthenics are usually thin, but by no means invariably so. I have seen many who were quite abnormally fat. The stigmata of intestinal stasis, as insisted on by Sir Arbuthnot Lane, are frequently present—namely, a dry skin, showing marked pigmentation at the anterior border of the axilla, round the neck, in the flanks and groins, the flexure of the elbows, and in the popliteal region. Dark rings round the eyes and a general air of weariness are very common. In some few cases the pigmentation of the skin may be so extreme and so generally distributed as to suggest the possibility of Addison's disease. Vague pains of a fleeting character in the back and limbs are not uncommon, and while these pains are frequently associated with the occurrence of rheumatic nodules and a certain amount of peri-arthritis in wrists, elbows, shoulders, or knees, it is even more usual to have the pains occurring with great persistence without any overt physical condition to account for their presence, so that one is forced to describe them as neuralgic in character.

It is a noteworthy fact that neurasthenics of this type very frequently display marked symptoms of psychasthenia, so that as the condition progresses a patient who has hitherto been quite ordinarily cheerful and capable of concentration, and free from any emotional instability, becomes either morose and suspicious or excitable and capricious in ideas and tastes. In some, indeed, the dullness and moroseness of character becomes so marked that their condition approaches very nearly that of the true melancholic, while in others the over-excitability of the nervous system may express itself by outbreaks which have a close resemblance to the milder forms of acute mania. All the morbid fears may be met with—agoraphobia, claustrophobia, ergophobia, the fear of street traffic, and the rest.

The pulse-rate in gastric neurasthenics varies considerably in different cases. In some it may be as low as 55 or 60 a minute, while in others it is greatly increased, perhaps up to 120 or 140, but in the majority of cases it runs between 70 and 80. In those cases where the pulse-rate is increased, attacks of tachycardia accompanied by a livid flushing of the face and extremities are not uncommon. As one would naturally expect, those patients who display increased rapidity of cardiac action tend towards a condition of nervous excitability, and those whose pulse-rate is abnormally slow or normal exhibit a tendency to depression with morbid anxieties and fears. In those who are depressed constipation is almost constant, while in those who exhibit but little depression or tend to unusual irritability and excitement constipation is much less frequent, and, indeed, they often suffer from more or less constant diarrhœa, which, although usually not severe, may be an urgent symptom.

Appetite as a rule is poor, but many gastric neurasthenics suffer from a sinking feeling in the epigastrium some two or three hours after a meal, and, this sensation being relieved in great measure by the taking of food, many patients get into the habit of drinking milk or eating a small quantity of food between the ordinary meals. While this sensation is usually that of a vague sinking feeling, many patients suffer from a severe burning pain in the epigastrium some two or three hours after eating, and this pain is relieved by the taking of food in exactly the same way as the sinking sensation. Thus patients are encouraged by their own sensations and even by the advice of the physician to eat much more frequently than normally. The idea of frequent feeding is also encouraged, especially in thin neurasthenics, by the belief that they need "building up," and should take more than the usual quantity of food for that purpose.

This paper is based on the continuous observation of 100 cases during the past four years. I examined the gastric contents in 20 of these cases, all of whom suffered from pain and discomfort in the epigastrium, beginning two or three hours after food and relieved by eating. In 16 out of the 20 the total acidity was increased; in 2 the total acidity and hydrochloric acid content were normal, while in the 2 remaining cases the total acidity was less than normal and hydrochloric acid practically absent. In the 16 cases in which the total acidity was increased the proportion of hydrochloric acid varied enormously. In 3 cases there was definite hyperchlorhydria, but in the remaining 13 cases the hydrochloric acid was either normal or definitely diminished. In all those cases where the total acidity was high without hyperchlorhydria, the high acidity was due to the presence of organic acids—namely, butyric acid and acetic acid; in no case was lactic acid present. Large quantities of mucus were usually present in the stomach washings, and sarcinæ were found in three cases.

In one case an interesting appearance was observed in the stomach washings on microscopic examination—namely, a certain number of red cells, and here and there plaques of pavement epithelium. The patient was a young woman, in whom, in spite of her age, a fear of cancer had arisen in her own mind and in the mind of her medical attendant, largely on account of the fact that she had got very much thinner and had practically no hydrochloric acid present in her stomach after a Boas test meal. She was profoundly neurasthenic and had a greatly dilated stomach. The subsequent history of the case has put the idea of cancer entirely away; the stomach is normal in size, the patient has recovered weight, and is no longer neurasthenic. The cells which were found in the stomach washings were probably derived from a superficial erosion of the lower end of the œsophagus just where it enters the stomach. Superficial erosions of œsophageal and gastric mucous membrane would seem to be not uncommon in many of these cases.

The blood pressure of gastric neurasthenics is in the great majority of cases rather below the normal. I have observed only 4 cases in which the blood pressure was definitely raised. In one of these cases the blood pressure was 180 at the first examination, and since then has varied between that figure and something over 200. The heart is very slightly enlarged, and the patient suffers much from dyspnœa; no albumin has ever been discovered in the urine. It is probable that the period of the climacteric has something to do with the heightened blood pressure, but the case is still under observation, and nothing more definite can be said until further time has elapsed. The 4 cases of the series whose blood pressure was high have on the whole responded very unsatisfactorily to treatment. Betterment has been quickly followed by relapse, and their condition is still extremely unsatisfactory. They were all elderly people, and suffered, with the exception of the case mentioned above, from marked arterio-sclerosis. Forty cases of the series had a blood pressure very much below the normal, the systolic readings being somewhere between 100 and 110. Of these, 32 had at the same time a more or less normal pulse-rate, while the remaining 8 had an extremely rapid pulse, and might be classified as borderland cases of the Graves's disease type. Of these 8, 5 benefited but little from treatment, but the remaining 3 did very well.

Physical examination in neurasthenia gastrica usually shows sensation to be normal, and beyond a more or less definite exaggeration of the tendon reflexes nothing is discovered as a rule betokening any gross abnormality in the nervous mechanism. The heart's sounds are frequently feeble, and the character of the first ventricular sound often approaches that of the normal second sound at the apex. In those cases which show a pulse-rate above the normal the character of the cardiac sounds is frequently of the "watch-ticking" type —that is to say, both sounds are sharp, and there is a distinct reduction in the length of the long pause

It is in the examination of the abdomen that the most characteristic condition of neurasthenia gastrica is found. In every member of this series I have discovered a dilatation of the stomach, always distinct, but varying somewhat in extent and character in different cases. It is my practice to map out the stomach in the recumbent position by auscultatory percussion. At first I had many of the cases checked by the administration of an opaque meal, but finding that, allowing for a reasonable margin of error, my estimation of the size of the stomach and the character of its dilatation corresponded very accurately with the X ray report, I have latterly ceased to subject the patient to the extra discomfort and expense of an opaque meal and an X ray examination, save only in those cases where several examinations have suggested the possibility that the gastric dilatation may be due to an organic stenosis of the pylorus or that a chronic appendicitis or some other intestinal abnormality be present. Having discovered that the stomach is dilated, it is, in the vast majority of cases, a perfectly easy matter to ascertain whether or no the dilatation is due to a mechanical obstruction at the pylorus or to an atony without any important degree of pyloric stenosis.

In THE LANCET of January 28th, 1911, Dr. Percy Mitchell published a paper the object of which was to show that atonic dilatation of the stomach could be diagnosed and treated by the excitation of what he believed to be a cutaneo-gastric reflex produced by gently stimulating the skin in various areas, particularly below the rib margins, between the seventh and ninth left costal cartilages. Dr. F. J. Wethered has also described the reflex and its relation to treatment.[1] After some four years' experience of cases of this kind I have been able to confirm the observations of Dr. Mitchell and Dr. Wethered, save perhaps in one or two unimportant details in the description and interpretation of the auscultatory sounds. After some practice it is possible to distinguish with reasonable accuracy between the sounds produced by the passage of gas or fluid through the pylorus and those produced either in the course of the small intestine or in the colon. If after one or two attempts a free passage of fluid or gas through the pylorus is heard, it is reasonable to suppose that whatever obstruction there may be at the pylorus is of a spasmodic character. If after repeated sittings the size of the stomach is reduced to something approaching normal by the repeated excitation of the cutaneo-gastric reflex, the diagnosis of a functionally atonic stomach may be considered pretty certain. It is of the greatest importance that at an early stage of the patient's illness the possibility of an organic stricture of the pylorus should be thus eliminated. If such a stricture be suspected an opaque meal should be given and a careful X ray examination made.

The condition of spasmodic contracture of the pylorus may be the result not necessarily of an ulcer or an erosion or fissure in the pyloric region, but it may be also due to causes far removed from the stomach itself. The recognition of an atonic stomach with dilatation has been commented on frequently by surgeons as secondary to a chronic appendicitis, and in many cases I have found such a dilatation of the stomach, associated with a spasmodic contraction of the pylorus, secondary to an erosion of the cervix uteri or to some cystic or inflammatory condition of the ovary in the female and to phimosis in the male child. It is necessary, therefore, in the preliminary examination of a case of neurasthenia with dilated stomach to eliminate carefully the possibility of an organic stricture of the pylorus being present, and also to exclude any primary inflammatory lesion in the appendix or any uterine or ovarian condition in the female which might possibly produce a gastric atony.

I have deliberately excluded from this series of cases any which I have found to be suffering from a marked general visceroptosis, or who have in addition to their gastric dilatation a movable kidney, because this condition is sufficiently interesting and important to merit separate consideration. Having made a diagnosis of neurasthenia associated with gastric atony, it is often a difficult matter to make up one's mind as to whether the neurasthenic condition is, as it frequently appears to be, secondary to a gastric disturbance of some kind which has led to atony of the organ, or whether the gastric condition is simply the emphatic expression in the stomach of a general neurosis. The histories given by many patients make it quite clear that until the occurrence of gastric trouble they had displayed no tendency to neurasthenia. On the other hand, there are many patients' whose history, both personal and family, and whose appearance make it equally plain that the gastric atony is merely a part of a general neurosis. It has been noted that a dilatation of the stomach, with

[1] Practitioner, December, 1911.

vomiting and symptoms so suggestive of an organic pyloric obstruction that a surgeon has been called to see the case with a view to immediate operation, has followed on a mental disturbance such as grief and aggravated worry, and has subsided quietly without interference or has been cured by ordinary medical means. Similarly, it is a matter of common observation that many people suffer from dyspepsia only under the stress of emotional disturbance or serious worry. In all the patients whom I have seen of a neurasthenic type who suffer from dyspepsia associated with worry and emotional distress I have found a definite dilatation of the stomach with marked delay in emptying.

There is one factor in the production of neurasthenia gastrica which must be considered at the present time, and that is long-continued and acute nervous tension combined with more or less privation. These conditions obtain very largely in time of war. I have seen several cases in which the foundation of a neurasthenia of a definitely gastric type was laid during the sieges of Ladysmith and Mafeking. The nerve-racking strain maintained for weeks, insufficient and coarse food, and the physical exhaustion of continued vigil, produced not only a simple neurasthenia, but a neurasthenia combined with very definite gastric symptoms, and it is conceivable that the present war will produce a large group of cases of this kind both in our navy and our army.

Roughly speaking, gastric neurasthenia may be divided into two classes—namely, those in whom the gastric atony is definitely primary and the neurasthenia secondary to the gastric trouble, and those in whom the gastric dilatation is a part of a more general neurosis. Where the primary fault has been a gastric atony and dilatation one finds the stomach dropped, and while the upper border may be very high there is also much spreading to the left of the area of gastric percussion and the lower border may be many inches below the umbilicus. Where, however, the gastric disturbance and atony are a part of a more general functional nervous disturbance there is in most cases but little ptosis of the organ, but the upper border may be very high. In the report of an X ray examination after an opaque meal in such cases one is told very frequently that the stomach appears to be fairly normal, but is unusually capacious, is slow to empty, and the air bubble is very high.

The treatment of cases of neurasthenia gastrica must follow in the first place general lines suitable to any case of neurasthenia, combined with special treatment devoted to the gastro-intestinal tract. It is a matter of some difficulty to determine what degree of rest is necessary for cases of this kind. In all probability the best method of treating every case of neurasthenia gastrica will be to put the patient to bed for a week or two, while the special treatment of the gastro-intestinal condition is begun at the same time. Nothing could be worse, however, than the mere putting of such patients into a nursing home for the so-called "rest-cure," combined with full feeding or, as is common in such places, over-feeding. One has to remember that in all these cases there is present a stomach which has lost its tone in greater or lesser degree, which is unusually capacious, and which is very slow to empty. Rest in bed and over-feeding will not help this local condition, and it is a matter of experience that whether the local condition is the primary fault or whether it is merely an incident in a more general neurosis, it is this local condition that affords an obvious and accessible point of attack in the combating of the general condition. Where the gastro-intestinal fault is primary, it is extraordinary how soon the patient's nervous condition will improve after the gastric and intestinal digestion is proceeding in a fairly normal way. Where the gastro-intestinal condition is merely a part of a more general neurosis, the alleviation and cure of the digestive fault enables the physician to impress himself upon the patient in other directions with a degree of certainty which without the alleviation of the gastro-intestinal fault would be very difficult, both because the confidence of the patient is gained by the relief of a definite discomfort, and also because one source of toxæmia is thereby removed. The kind of rest, therefore, and the kind of dietary treatment most suitable for these cases must be carefully considered. The aura of illness, the rigid and often senseless routine, and the pervading gossip of maladies and doctors which go to make up the atmosphere of some nursing homes are in no way helpful to a patient who is sensitive, introspective, frequently intellectual, and nearly always easily depressed. To make a practice of depriving such patients as far as possible of all stimulation of an intellectual kind, quite irrespective of their previous habits and surroundings, is in most cases unwise. To take a concrete example; it would be a foolish thing to take a young girl of intellectual aspirations and artistic tendencies from a house in the depths of the country, where she has been subjected to no intellectual strain, but where she has rather suffered from intellectual starvation and an excess of domestic routine, and put her into an ordinary nursing home, where she is still deprived of all intellectual stimulation, to be treated mainly by rest and over-feeding. One's experience is that such treatment simply tends to encourage the somewhat morbid introspection and self-analysis which is so common in cases of this type. It is true that the introspection may be combated by suggestion, with or without hypnosis, but this whole method of treatment seems to be a somewhat unnatural and exotic way of obtaining results which might be obtained more easily and at less expense by methods of a more natural and physiological kind, which are more simple and direct. In a certain definite proportion of cases, however, it will be found that even after the gastric condition has been put right and the nerve exhaustion has disappeared there remains some fixed idea or fear, or perhaps persistently recurring pain, and in such cases an appeal to psycho-therapy is necessary for the complete alleviation of the condition.

If the patient displays a degree of nerve exhaustion so great that he is manifestly overtired even after a slow, short walk, and if his neurasthenia has appeared after a period of prolonged mental or intellectual strain, it is evident that absolute rest for a certain number of weeks will have to be an essential part of his treatment. In nine cases out of ten this rest can be carried out at home, with the help of suitable nursing. It is wise to relieve the patient's family of all responsibility of nursing in these cases, since relatives are apt to err either on the side of carelessness or over-anxiety when in charge of such patients. Moreover, a certain regular routine is of value in the treatment. There is certainly a small residue of cases, more particularly those who display mental symptoms indicating excitement rather than melancholia,

for whom absolute rest and isolation, continued perhaps for several months, is of the greatest possible value; but while such people do well with absolute rest and isolation, experience rather goes to show that those who incline to a melancholic temperament do badly—that is, although physically they may improve for the time being, they tend to grow more introspective and dependent on seclusion after such treatment. In feeble cases the duration of the rest period must be determined by the degree of improvement which the patient makes in respect of appetite and weight, and, roughly speaking, the shorter the period of absolute rest the better, except in the excitable class of case indicated above.

The place of rest is also of the greatest importance. While it is certainly true that a quiet retreat is probably the best for the jaded town dweller, and also for the extremely excited patient from whatever part of the country he may come, it is equally true that a patient from the country, especially if he be a person of intellectual interests, very often improves more rapidly if his residence be changed from the country to the town. In those cases in which the exhaustion is not sufficiently extreme to warrant absolute rest, a quiet district of a town is quite as suitable for residence as any part of the country, unless there be some atmospheric or other condition of the town which is manifestly adverse.

As strength improves and as the gastro-intestinal condition is ameliorated, the interest of the patient regarding pursuits that are congenial to him must be quietly and gradually stimulated. The efforts of the physician must be directed to the discovery of some pursuit or study which is of real interest to the patient, and which will supply him on his return to ordinary life with a hobby or a diversion to which he may turn with relief from the day's routine. The cultivation of this side of the patient will afford him an outlet from daily strain, whether domestic or of a business kind, which will be of immense value in enabling him to take up work again without the risk of another breakdown.

The diet in neurasthenia gastrica is as a rule not a difficult matter. It may be necessary in a small proportion of cases who are very feeble to feed the patient frequently with small quantities of very light and easily digested food, and in another small group of cases, where there is evidence of much gastric catarrh or possibly serious gastric erosion, it may be necessary to starve the patient entirely for a few days, or at the most feed him on predigested milk. The cases, however, which require such severe limitation of diet are very few, and a light mixed diet will be found most suitable for the condition, carefully avoiding any attempt at "over-feeding." The continental breakfast, consisting of coffee and milk, toast or rusk and butter, should be given somewhere between 8 and 9 A.M. At 1 P.M. a little clear soup or some boiled or steamed fish, with a little lightly cooked mutton or a bird may be given. At 6.30 or 7 P.M. a similar meal may be taken. Toast or rusk should be eaten at these two last meals. It is well, during the early stages of treatment at least, to avoid potatoes and any vegetables having a large residue. A glass of water may be given at 11 A.M. and at 4 P.M., also before going to sleep at night, otherwise nothing should be given between meals. As the case progresses, lunch and dinner may be increased and varied, so that practically all kinds of food may be taken at these meals. Patients who suffer from this condition, however, should be warned that for the rest of their lives they should avoid taking afternoon tea, or at least if they choose to drink a cup of tea in the afternoon they should eat nothing with it, and that all forms of food cooked with much fat should be eaten very sparingly. The early morning cup of tea should be forbidden. In general, patients should be warned to avoid those foods which from their nature tend to remain long in the stomach, seeing that the natural tendency to slow emptying of the stomach with resulting fermentation is thereby encouraged. It is absolutely necessary to give the stomach the chance of emptying itself after one meal before another is taken, and it is bad practice, therefore, to overfeed by giving milk between meals in such cases. A stomach that is imperfectly emptied before a new meal is put into it is always the seat of a greater or lesser degree of fermentation, and fermentation means toxæmia. The psychic stimulation to digestion should always be considered, and a patient may be permitted within reason to eat food which pleases him and attracts him rather than that which is uninteresting and distasteful to him, even though the former may appear to be the more indigestible of the two. Similarly, the use of condiments is not to be discouraged.

An essential part of the treatment of cases of gastric neurasthenia is the removal of any source of irritation or toxæmia apart from the stomach itself. The mouth ought to be put into a state of good repair; carious teeth should be removed, and if gingivitis or pyorrhœa alveolaris be present it must be treated at once and with care. Similarly, any infective condition of the nose or throat should be cleared up. Appendicectomy should be performed if there is any indication of a chronic inflammatory condition of the appendix, while the uterus and ovaries should be carefully examined and any abnormal condition rectified. In a certain small proportion of cases it may be even necessary, on account of long-continued and severe gastro-intestinal toxæmia which resists any other form of treatment, to remove the colon and implant the ileum into the sigmoid, as recommended by Sir Arbuthnot Lane. This operation, however, should not be resorted to until every other known means of treatment of these cases has been proved, after careful and long-continued trial, to be a failure. An operation of this magnitude is not a thing to be undertaken lightly, especially as care and perseverance along other lines of treatment usually have the effect at the least of so far ameliorating the patient's condition as to make life again tolerable and useful.

Having removed all other sources of toxæmia and irritation, the treatment of the gastric condition by the method described by Dr. Percy Mitchell should be instituted. Without going into unnecessary details, having regard to the fullness of Dr. Mitchell's description of the method, it may be well to give a short description of the manipulation necessary for this form of treatment.

The patient lies on his back in bed or on a couch; the physician sits on his right side facing the head and places the phonendoscope over the pyloric region of the stomach. He then with the fingers of his right hand strokes the skin very lightly just inside the cartilages from the tenth to the seventh ribs on the left side of the patient. The stroking should be intermittent and a slight vibratory character given to the movement. The skin is stimulated in this way until a contraction of the stomach is educed, this contraction being

expressed by a succession of explosive or gurgling sounds audible through the phonendoscope, due, presumably, to the passage of gas or fluid through the pylorus. The moment that a contraction of the stomach takes place stimulation of the skin should be intermitted until the gurgling and explosive sounds have entirely ceased. The process is then repeated until another contraction takes place, when another pause is made until all sounds cease. Treatment in this way is carried on for some 20 to 30 minutes at a time, at the end of which it is usually found that the size of the stomach is considerably reduced. It is not possible in most cases to empty the stomach completely at the first sitting, nor is it particularly desirable to do so. One finds often in neurasthenic cases that at first it is only possible to educe one or two contractions in the time devoted to the treatment, and it is only after treatment has been carried on regularly on successive days for upwards of a week that frequent and powerful contractions are educed and the size of the stomach brought to limits approaching the normal. In many cases a contraction is not educed very easily by stimulating the skin in the area already described, and it is necessary to stroke the skin overlying the lower costal cartilages from below upwards with a sweeping and slightly interrupted movement, from about the tenth costal cartilage almost to the left edge of the sternum, following more or less the line of the normal upper border of the stomach as ascertained by auscultatory percussion. By stimulating the two areas alternately a contraction may often be educed where stimulation in only one area has failed.

In most cases it is advisable to continue this treatment daily for several weeks on end, and then gradually diminish the frequency of the sittings, so that the patient is treated only three times a week, then twice a week, and at last only once a week. In an ordinary case the patient remains under observation and treatment for some three months. The time necessary for effective treatment varies very much in different cases. In some excellent results may be obtained after a few weeks of treatment, whereas in others treatment has to be kept up, although perhaps at considerable intervals, for a period of about six months. The best time at which to give the treatment is some hours after a meal, at a time when the stomach might reasonably be supposed to be empty were it acting with normal vigour.

It would seem that the contraction of the stomach after stimulation of the skin in definite areas is in the nature of a true reflex. Similar reflexes elsewhere in the body are not unknown; a notable example is the spasm of the glottis educed by irritation of the posterior nares. If, as seems most probable, the contraction of the stomach be due to indirect stimulation of the vagus the reflex centre probably lies in the bulb. The afferent path of the reflex would seem to be along sensory fibres which are stimulated by light touch. Heavy pressure over the area indicated will not give rise to a satisfactory reflex. It is probable, also, that the reflex can be educed by stimulation along the pain tracks, but it is educed in this way with difficulty, and in rather a capricious manner. A sudden shock of heat or cold frequently educes the reflex, but there is no doubt that it is most satisfactorily brought about by the gentle intermittent stimulation of the skin in the manner which I have described above. The sudden shock of heat or cold, or the stimulation produced by a large needle or a bunch of small needles over the areas indicated, would seem to be followed in many cases by one contraction, but further stimulation by the same methods does not produce a contraction, at any rate for a long time afterwards.

In the present state of physiological knowledge it is difficult to estimate accurately the precise effects of vagus and splanchnics on the movement, tonicity, and secretion of the stomach, but it would appear that the vagus exerts a tonic effect on the gastric walls, stimulates peristaltic action, and also stimulates gastric secretion, while the splanchnics produce a diminution in tone, diminished peristalsis, and diminished gastric secretion. One can see, therefore, that if the cutaneo-gastric reflex described by Dr. Mitchell and afterwards by Dr. Wethered induces peristalsis of the stomach so that the organ can be emptied, if it also restores tonicity to an atonic stomach after repeated stimulation, and if it restores gastric secretion which had hitherto been below the normal to a normal condition, it would seem almost certain that this cutaneo-gastric reflex acts by indirect stimulation of the vagus. The fact that an emotional gastric atony may be counteracted by the treatment through the cutaneo-gastric reflex is further evidence in this direction, seeing that gastric disturbance produced by emotion must in all probability be induced through the action of the splanchnics, producing lack of tone and diminished peristalsis.

Again, a common symptom in neurasthenia gastrica is difficulty, amounting sometimes to pain, in swallowing at the early part of a meal, with a sense of constriction in the chest and neck. It is probable that this symptom is due to intermittent achalasia of the cardia, and can be brought about by inhibition of vagus activity or by overaction of splanchnics. Clinically, this symptom is one of the easiest to remove in neurasthenia gastrica by stimulation of the cutaneo-gastric reflex. We know that the action of the vagus is to cause relaxation of the cardiac end of the œsophagus, and it is therefore reasonable to suppose that the relief of the achalasia of the cardia produced by excitation of the cutaneo-gastric reflex is due to vagus action. The effect of long-continued anxiety, fear, or sorrow, if it have any effect at all upon the gastric mechanism, is to produce through the splanchnics an atony of the muscular walls of the stomach with spasm of the pyloric portion of the organ, presumably the antrum. Stimulation of the cutaneo-gastric reflex certainly produces, besides an increased tone and peristalsis in the stomach as a whole, a relaxation of the pyloric portion, and this fact, therefore, is further evidence in support of the view that the efferent path of the reflex is by the vagus.

Harley-street, W.

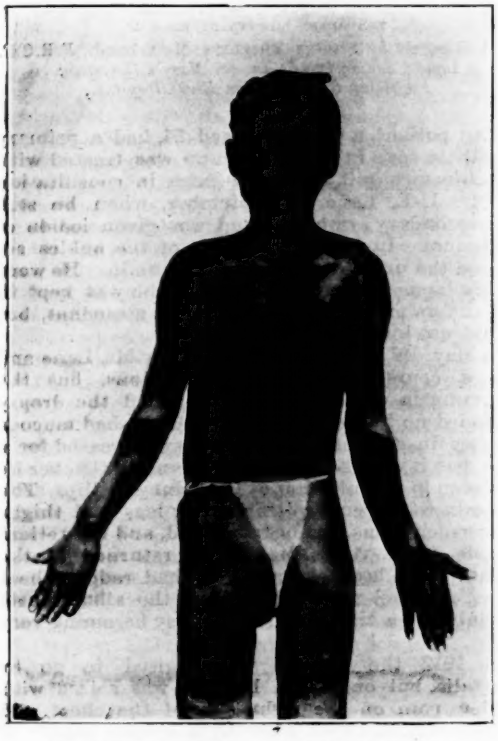
BRISTOL GENERAL HOSPITAL.—The half-yearly meeting of the subscribers to the Bristol General Hospital was held recently, under the presidency of Mr. H. Baker. The medical report stated that for the first six months of 1915 the in-patients numbered 1773 and the out-patients amounted to 16,859, compared with 1558 and 17,641 respectively for the corresponding period of 1914. The average number of occupied beds was 245, as against 187 for the first six months of 1914. Fifty-five beds have been placed at the disposal of the military authorities. The financial statement showed that the ordinary expenditure exceeded the ordinary income by £3328; legacies had been received amounting to £4091, and these had enabled the deficit to be met. The chairman made a strong appeal for increased financial support, so that the permanent income of the charity should be increased.

NOTES ON

A CASE OF MULTIPLE EXOSTOSES WITH HEREDITARY HISTORY.

BY ROBERT COX, B.A., M.B., B.CH. R.U.I.,
MEDICAL OFFICER, FEDERATED MALAY STATES MEDICAL DEPARTMENT.

A well-nourished Tamil was admitted to hospital on June 16th, 1915, complaining of œdema of the feet. He was found to be suffering from ankylostomiasis, and after appropriate treatment the œdema quickly disappeared. An examination of the skeleton showed a large number of bony tumours and bony irregularities, which are especially well marked in the following situations.



Case of multiple exostoses. back view of the patient.

Right upper extremity.—Small tumours on the dorsal aspect of the proximal phalanges of the second, third, fourth and fifth digits. A tumour on the dorsal aspect of the lower end of the radius. The inner lip of the bicipital groove is enlarged to form a considerable elongated tumour. A tumour at the deltoid eminence. The vertebral border of the scapula is thickened to form a well-marked tumour. A tumour of the superior angle of the scapula. A tumour on the lower border of the spine of the scapula. Two tumours at the acromial end of the clavicle, one on the anterior and one on the posterior border. The forearm can be completely pronated, but the power of supination is much diminished.

Left upper extremity.—Small tumours on the dorsal aspect of the proximal phalanges of the fourth and fifth digits. A tumour on the front of the lower end of the radius. Two tumours on the inner side of the neck of the humerus and one on the back of the neck. A bony prominence at the anterior border of the acromial end of the clavicle. All power of pronation and supination is lost, the forearm being fixed in the position of complete pronation.

Right lower extremity.—The anterior tuberosity of the tibia is enlarged to form a big tumour. The upper end of the fibula is enlarged to form a considerable tumour. A large tumour on the outer condyle of the femur. The adductor tubercle forms a distinct tumour. A large tumour on the posterior external aspect of the femur at the junction of the lower and middle thirds. A large tumour of the posterior external aspect of the femur below the great trochanter.

Left lower extremity.—A large tumour at the upper end of the fibula. A massive tumour on the posterior internal aspect of the inner tuberosity of the tibia. A small prominent tumour to the inner side of the anterior tuberosity of the tibia. A large tumour on the posterior surface of the upper end of the femur. The crest of the ilium behind the anterior superior spine is markedly tumorous.

All the tumours are sessile and painless. The examination of the blood and urine was negative.

The patient is 26 years old, and was born in the Salem district of Southern India. He was a padi planter until five months ago, when he came to this country and worked on a rubber estate. After three months he left the estate on account of repeated attacks of malaria and has since lived by begging. He had small-pox about the age of 4 or 5, and except for repeated attacks of malaria he had had no other illnesses. He has had the bony tumours as long as he can remember. They have never given him any trouble and he never noticed them getting larger. The patient states that his mother died in his infancy and that he has no knowledge of her. His father married again and had one daughter by the second wife. There were no other children. Both the father and the step-sister had similar deformities of the legs. The most interesting of these numerous exostoses are those at the acromial ends of the clavicles, where they are far removed from the ossifying junctions.

Parit Buntar, Federated Malay States.

THE TRANSMISSION OF MALARIA IN NORTHERN FRANCE.

BY J. HENRY DIBLE, M.B., CH.B. GLASG.,
DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY OF SHEFFIELD; TEMPORARY CAPTAIN, R.A.M.C.

THE presence of malaria-infected persons in the area occupied by British troops in Northern France raises the question of the likelihood of transmission of the disease to uninfected subjects living in the same districts. The cases quoted below show that such transmission can and does occur. Both of these cases were sent from the front to a base hospital. In neither case had a diagnosis of malaria been arrived at when they were admitted here.

CASE 1.—Private ——, Black Watch, was taken ill whilst in the trenches with his battalion about a fortnight prior to his admission. He complained of pains in the head, general malaise, and attacks of shivering; also of pain in the left side over the splenic area. The symptoms first commenced at about mid-day and recurred daily, starting with chilliness and shivering, which was later followed by sweating and amelioration of his condition. He was admitted to this hospital as a case of indeterminate pyrexia; an accompanying temperature chart showed periods of pyrexia occurring at about 2 to 3 P.M. daily; on three occasions rigors had been noted. He complained of pain over the splenic region, but the organ was not palpable. The history was thus that of a typical quotidian fever.

On the day of admission, August 26th, the patient had a rigor at noon, and at 2 P.M. his temperature stood at 104·6° F. Blood films taken at this time showed the presence of numerous malarial parasites, mostly moderately grown plasmodial forms with scattered particles of hæmozoin pigment, though less mature and young ring forms were also seen. The appearances of the parasite identified it as that of tertian fever. The condition entirely subsided under the administration of quinine.

Prior to the war this patient had never been out of Scotland. He was a pottery worker by trade, and had spent most of his life in the vicinity of Paisley. He came to France on May 10th, 1915, and landed at Boulogne, whence he was moved to the Armentières-Bailleul district, and thence after a short time to Lillers and on to ——, where he remained until the occurrence of his present illness. When not in the trenches he was billeted in various farms; both in billets and in the trenches he suffered a good deal from mosquito bites.

CASE 2.—Gunner ——, Royal Garrison Artillery, was admitted to base hospital on August 24th, 1915. He had been taken ill at the village of ——, near Lestrem. The illness began in the evening, and was of sudden onset with pains in the head and legs, malaise, and shivering, which were, after a time, succeeded by fever and sweating with relief to his symptoms. The following day the attack recurred and he "reported sick." He was laid up in his bivouac for three days and finally evacuated as a case of influenza. In hospital he was found to have a marked intermittent fever, the periods of pyrexia recurring every second day, and the temperature reaching on an average 105° to 106° F. The spleen was not palpable.

Blood films taken during the cold stage of one of the attacks were found to contain numerous malarial parasites. These at this time were chiefly the fully grown and early sporulating forms; in addition, typical sporulating forms were seen. The appearances of the parasite and the number of merozoites to which it gave rise enabled it to be identified as that of tertian fever, the plasmodium vivax.

This man also had never been out of England prior to joining the Expeditionary Force. He had served four years in the army and had never seen foreign service. Before enlisting he had been a labourer. He came to France on August 17th, 1914, landing at Rouen and subsequently being at Mons and through the retreat. After the battle of the Marne he was in the Ypres district from October to April, when he was moved to the vicinity of Lestrem, where he has been quartered ever since. During the summer he has bivouacked under a temporary tarpaulin shelter in the orchard of a farmhouse; this bivouac was within 50 yards of a canalised river and in a low-lying field surrounded by stagnant dykes, such as are a prominent feature of this part of French Flanders. He was much bitten by mosquitoes.

The significance of these two cases lies in the fact that the possibility of their being recrudescences of an old-standing infection does not occur, so that in both cases the infection has taken place in French Flanders, where, so far as I am aware, there is no endemic malaria. Both these men, then, have contracted the disease in the region occupied by the British army, and it is logical to conclude that malaria-infected mosquitoes are now present in this area. The country in which these cases occurred is eminently suited to the mosquito, being flat and well-watered. It is largely intersected with deep dykes which, even in the height of summer, have some feet of stagnant water in them and form an excellent breeding ground. Moreover, the farms of this region are of a very insanitary description, and an abundance of decaying organic material is inevitably to be found in their vicinity. Anyone who has lived in this part of France during the summer months can testify to the abundance of mosquitoes, and these are an especial nuisance to the men who commonly bivouac in small tarpaulin shelters of their own construction. In these low shelters mosquitoes and flies of all kinds are extremely abundant and very troublesome.

The country is, then, infested with mosquitoes. Prior to the war there were presumably no malarious inhabitants in this region, but with the coming of the British army a certain number of individuals have been introduced with the parasite in their blood, and all the factors for the transmission of the disease are thus present. It is a significant fact that the patient in the second of the above-cited cases had, for the whole of the summer, been living in a part of the country which has long been occupied by a division of the Indian troops and where recrudescent cases of malaria are consequently comparatively common.

The occurrence of cases such as those above quoted raises the larger question of the possibility of the disease remaining endemic, and suggests the necessity for the adoption of strictest anti-mosquito measures.

A CASE OF SYPHILITIC NEPHRITIS TREATED BY SALVARSAN.

BY NORMAN MACDONALD, M.R.C.S., L.R.C.P. LOND.,
TEMPORARY LIEUTENANT, R.A.M.C.

With Remarks by SIDNEY PHILLIPS, M.D. Lond., F.R.C.P. Lond, *Senior Physician, St. Mary's Hospital; Physician to the London Lock Hospital.*

THE patient, a City man aged 24, had a primary syphilitic sore in May, 1910, and was treated with Hutchinson's pill. He was seen in consultation by Mr. J. E. Lane in September, when he still had secondary symptoms and was given iodide of potassium. In December œdema of the ankles set in, and the urine contained half albumin. He went to his home in the country, where he was kept in bed and on milk diet by his medical attendant, but he did not improve much.

In May, 1911, the patient again saw Mr. Lane and had a course of mercury inunctions, but the albuminuria was still a quarter and the dropsy extended up to the knees. In June he had mucous patches in the mouth; his dropsy decreased for a time, but it soon got worse again, and in October he was seen in consultation by Dr. Sidney Phillips. The albumin was then two-thirds, the legs and thighs were œdematous, the heart dilated, and the retinal vessels were very small. He returned to the country and lay up again, and had radiant heat baths, and he greatly improved, the albuminuria lessening to a trace and the dropsy becoming very slight.

In 1912 the patient was advised to go to Australia, but on March 12th he was seized with sudden pain on the right side of the chest and hæmoptysis, and soon after by a similar attack of pain on the left side of the chest. Early in April he was seen by Dr. Phillips in the country with his medical attendant. He then had signs of copious pleural effusion on both sides verified by a hypodermic needle, dropsy in the limbs and back, and there were some signs of pneumonia. There were half albumin and a little blood in the urine and numerous epithelial casts. His temperature had been 101° to 103° F. for some weeks, but he did not feel as ill as might have been expected. He rapidly improved with mercurial treatment, and when seen in London in July he was practically well except for a little percussion dullness at the base of the right chest. In September and October there was only a trace of albumin in the urine, and he wintered in Australia, returning quite well in May, 1913. In August and September of that year there was a trace of albumin in the urine with very slight œdema, and the same was the case when he was seen again in May, 1914. The blood pressure was then 140 mm. (Pachon's instrument) and he had some ulceration of the tongue.

In May, 1915, the patient said he felt perfectly well and wished to marry, but there was one-sixth of albumin in the urine. There were still slight œdema and a positive Wassermann reaction. The blood pressure was 150 mm. He was very anxious to have treatment by salvarsan, and it was agreed by both Dr. Phillips and myself that, seeing the failure of long-continued mercurial treatment, it should be given. This was administered by the intravenous method, through a very small needle, 0·3 grm. on May 15th, 0·4 grm. on May 29th, and 0·6 grm. on June 12th. There were no unfavourable symptoms on any of these occasions. On June 10th the albumin was one-sixth and the Wassermann reaction positive, but on June 24th it was reported negative and the albuminuria was slightly lessened in amount. On August 31st he still had a trace of albumin, but was otherwise very well.

Remarks on the Case by Dr. SIDNEY PHILLIPS.

It is no longer open to question that syphilis in its early as well as in its later stages may give rise to nephritis, and, indeed, the dependence of one upon the other is probably more common than is generally appreciated. The present case was very typical of early syphilitic nephritis in its clinical course.

1. It commenced about the fifth month after infection, which appears to be about the usual period, though it may be later or may be much earlier. In one reported case it occurred before the secondary roseola.

2. The onset was insidious and without marked symptoms or derangement of health.

3. The percentage of albumin in the urine tended to be very high, and the albumin came down on warming the urine long before the boiling point was reached, forming a voluminous and peculiarly white deposit even when the urine was high-coloured.

4. There was a great tendency to rapid and extensive dropsical effusion which cleared up with unusual rapidity. In this case, as in others reported, there was also pleural effusion.

5. Throughout the case the patient's feeling of good health was quite out of proportion to the gravity of his symptoms. Even with extensive dropsy and great albuminuria he always averred he felt quite well, and he had none of the symptoms usually met with in nephritis from other causes.

6. The blood pressure was not much raised except on one occasion, and though there is not sufficient evidence of the effects of blood pressure in syphilitic nephritis, in this case, as in others I have seen, the tension does not appear to be much raised. In *late* syphilitic nephritis the blood pressure may be very high with extensive arterial degeneration.

The treatment by salvarsan was adopted after due consideration, notwithstanding that albuminuria is said to increase the dangers of its administration, as mercurial and iodide treatment had failed. In several cases treated by me or coming under observation salvarsan has not produced untoward effects when albumin was present. It was given with great care in small doses by Mr. Macdonald, and so far has resulted in the disappearance of the Wassermann reaction; its ultimate effect remains to be seen.

HOSPITAL SATURDAY AT NEWTON ABBOT (DEVON).—As a result of the recent Hospital Saturday collections at Newton Abbot the sum of £245 has been raised for the local hospital.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON A RELAPSING FEBRILE ILLNESS OF UNKNOWN ORIGIN.

BY J. H. P. GRAHAM, L.R.C.P. LOND., M.R.C.S.,
MAJOR, R.A.M.C. (S.R.).

WITHOUT being in a position to present a complete account of these cases, a sufficiently accurate description can be furnished of a clinical condition of which I have seen numerous instances during several weeks.

CASE 1.—A private belonging to an infantry regiment was admitted to the casualty clearing station from a field ambulance, where he had been detained suffering from a febrile illness of three days' duration and of sudden onset. His condition on admission was marked by frontal headache, dizziness, severe lumbago, a feeling of stiffness down the front of the thighs, and severe pain in the legs referred chiefly to the shins. He also complained of nausea, some pain along the costal arch, and about an area in the left flank close up to the ribs in the posterior axillary line there were pain and some tenderness radiating forwards and also downwards towards the iliac crest. The temperature was 103° F. The patient said that his condition was much as it had been from the onset except that the pains, at first fairly equal all over the body, had now settled more definitely in the places named and had become intensified. Beyond the raised temperature there were no objective symptoms. Phenacetin (gr. x.) was at once administered and later soda salicylate (gr. xx.). In 36 hours the temperature had fallen to 97°, and it remained at about that point during three days. I may say at once that I do not attribute this very marked fall to the drugs, for these have not had like results in many exactly similar cases, nor does a continuous administration prevent the relapse which always ensues after a variable period. With the fall of temperature the pains subsided except those in the shins, which persisted during the day and became very much worse towards evening, preventing sleep till the early hours of the morning in spite of anodynes. The temperature, after remaining round about 97–98° for three whole days, rose to 100° on the fourth morning, and for 36 hours remained at about that point, when it again came down to 97°. During this second febrile period all the pains returned and continued as during the first febrile period, but when the temperature fell this second time all the pains completely disappeared, and the man said that although he felt worn out he was comfortable at last.

CASE 2.—A private (R.A.M.C.) belonging to a clearing station was "warded" at 6 P.M. suffering from violent headache, giddiness, severe lumbago, and pains in the thighs and legs; he also had nausea and pain along the costal arch and in the left hypochondrium. The temperature was 102° F. The onset of illness was quite sudden. During three days his condition varied very little, except that the pains in the lower limbs concentrated in the shins and the nausea passed off. The lumbago and shin pains were severe enough at night to prevent sleep. Then the temperature fell to 99° and remained at about that point during four days, at the end of which period it rose to 103°, at about which level it remained for 36 hours and then fell to normal. Directly the temperature fell the first time and during the four days during which the remission lasted the only thing that troubled the patient was a feeling of exhaustion and the nightly return of the pain in the shins and back; these pains were severe and prevented sleep. When the temperature rose again after the period of remission all the symptoms of the initial febrile period returned, but completely disappeared when the temperature fell a second time. A few days after this patient had been under treatment another man was admitted from the same unit, the onset and course of whose illness were precisely the same, except that in this instance the lumbago was not so severe.

During a period extending over many weeks I have been receiving cases in considerable numbers presenting clinical features which do not differ in any material respect from those given above. The onset of the illness is in some instances quite sudden; this seems to be the rule, for it is only rarely that a history of any preceding malaise can be obtained, and there is a total absence of any constant or definite prodroma. The giddiness which accompanies the headache is a very constant feature and causes a good deal of distress; some patients say that even when lying down any movement is liable to cause giddiness, and several have told me that they had fallen down in a fainting fit at the start of their illness, the fit being really an attack of vertigo.

Before the pains concentrate in the shins, which they do eventually and give great distress towards evening and into the night, there is usually a sense of stiffness and soreness about the whole of the lower extremities. The lumbar pain sets in early, is severe, and in some cases quite as unbearable as it is in the invasion period of small-pox. The lumbar pain does not appear to have anything to do with the pain along the costal arch and in the epigastrium—that is, there is not a true girdle pain; also, the pain in the flank is not continuous with the lumbar pain, rather it appears at times to be linked up with the pain along the costal margin and to come forward and extend downwards along the line of the colon. I have thought the pain in the left flank might arise from the spleen but I cannot be sure. The nausea and vomiting I believe are central in origin, for the tongue is moist and comparatively clean almost invariably, though constipation is admittedly the rule and I have never seen diarrhœa present.

The only skin abnormalities I have observed have been herpes about the lips not infrequently; in one case it was very profuse under the chin, but I have never seen it on the trunk or limbs. Sometimes the face is a good deal flushed at the outset. Occasionally I have noticed an ill-defined eruption consisting of widely discrete papules scattered about the chest and abdomen, but this condition is so inconstant, and when it is present it is so ill-defined and may be accounted for in many other ways than as constituting part of the disease, that I do not wish to lay much stress on it at present.

The exhaustion following the acute stages of this disease is very marked. Though the duration of the pyrexial period and also of the period of remission and of relapse vary it is only within narrow limits; the initial period is about 96 hours, the period of remission is seldom longer, while the period of relapse usually extends over not more than 48 hours.

A CASE OF INFLUENZAL MENINGITIS.

BY C. VINCENT BOLAND, M.R.C.S., L.R.C.P. LOND.,
LATE TEMPORARY HOUSE PHYSICIAN, EVELINA HOSPITAL.

A CASE of influenzal meningitis which occurred recently at the Evelina Hospital but for bacteriological examination might have been diagnosed as cerebro-spinal meningitis, and is for that reason, I think, worth recording.

The patient, a well-nourished male baby four months old, was admitted into the Evelina Ward on August 9th, having been brought up to the hospital by the mother "because the child had become drowsy, would not take the breast, and kept its head bent backwards." He was a full-term baby, breast-fed, and had been perfectly well until August 5th, when he became very fretful and restless, would scream out suddenly during the night, and seemed to have pain in the head. About August 8th the irritability and screaming stopped, the child became drowsy, and head-retraction was noticed for the first time. No history of convulsions or vomiting could be obtained.

On admission the child was semi-conscious, the head was very retracted, and rigid to such an extent that it was possible to raise the child up with one hand on the occiput without lessening the amount of retraction. The temperature was 102° F.; pulse 152, of good volume and regular; respirations 50 and regular. There was no hydrocephalus nor was the fontanelle bulging. The child was quite blind, but had no squint or rolling movements of the eyes. The pupils were equal, slightly contracted, and reacted to light. Ophthalmoscopic examination of the fundi showed absence of optic neuritis or atrophy. There was nothing abnormal to be found in the chest or abdomen, and the latter displayed no scaphoid retraction. No paralysis could be discovered anywhere, the knee-jerks were brisk, and Kernig's sign was positive. Immediate lumbar puncture revealed that the cerebro-spinal fluid was slightly under pressure and turbid, and on examination the pathologist reported that it contained 1000 leucocytes per cubic millimetre; polymorphs 96 per cent., and lymphocytes 4 per cent. Noguchi's test was positive, and stained films showed the presence of a small number of Gram-negative bacilli which on culture gave a fine growth of B. influenzæ.

The child grew steadily worse daily, becoming more unconscious; the temperature oscillated between 99·8° and 104°. Lumbar puncture was done daily, the fluid never being under very great pressure, but becoming increasingly more turbid, so that about two days before the child died no more of it could be got away through the needle owing to the contents of the theca being now thick and purulent. On August 20th opisthotonos and conjugate rolling movements of the eyes started, but there were no pupillary changes. The child also developed a right facial palsy, and feeding had to be done with the nasal tube as he was unable to swallow. On the 22nd the child died after 13 days in hospital, having the previous day developed rigidity in both arms and legs.

At the post-mortem examination a large deposit of thick greenish-yellow pus was found in the subarachnoid space over the vertex, especially over the frontal lobes, and at the base. There was also a thick deposit over the upper surface of the cerebellum. Pus was also found between the dura and arachnoid in the middle fossæ, over the cribriform plate, and along the falx cerebri. The convolutions were very flattened and the white matter very soft. The ventricles were greatly dilated and distended with turbid fluid.

THE inaugural address at the London (Royal Free Hospital) School of Medicine for Women will be delivered by Dr. Florence Willey on Friday next, Oct. 1st, at 4 P.M., the subject being "War and the Medical Education of Women." The school has received an anonymous gift of £1000 for the extension fund, which now reaches £18,237. The total sum required is £30,000, and donations may be sent to the Duchess of Marlborough, honorary treasurer of the fund, 8, Hunter-street, Brunswick-square, London, W.C.

Reviews and Notices of Books.

Morris's Human Anatomy: A Complete Systematic Treatise by English and American Authors.

Edited by C. M. JACKSON, M.S., M.D., Professor and Director of the Department of Anatomy, University of Minnesota. Fifth edition, revised and largely rewritten. With 1182 illustrations, 358 printed in colours. London: J. and A. Churchill. 1915. Pp. 1539. Price 30*s.* net.

THE fifth edition of this well-known text-book of anatomy has undergone many changes both of arrangement and of authorship. We may summarise it by saying that it is a very good and comprehensive text-book, and that its list of authors embraces a wide field of workers both here and in the United States.

Perhaps the best account of it may be given by stating its general aims and by furnishing a list of its sections and authors. Firstly, it is Morris's "Anatomy," originally and always a good sound text-book of human anatomy; and secondly, it is brought up to date and revised by a staff of authors representative both of English and American schools. In the method of revision two points may be noted. The B.N.A. has been used throughout, and in this year, 1915, the pious wish of the editor that the outstanding defects of this system of nomenclature will be remedied at a forthcoming international congress of anatomy sounds somewhat incongruous. The subject matter throughout the book has been divided into two parts, that of primary and that of only secondary importance, and these two divisions are distinguished by large and small type respectively. This scheme no doubt is a good one, and in making it we trust the authors did not forget the undoubted fascination which small type has for the student.

For the rest we may give a list of the authors and the titles of the sections for the revision of which they are responsible:—I., the Editor, Morphogenesis and the Digestive System. II., Peter Thompson (Birmingham), Osteology. III., F. Wood-Jones (London), Articulations. IV., Charles R. Bardeen (Wisconsin), Muscles. V., Harold D. Senior (Bellevue), Blood-vessels. VI., Eliot R. Clark (Johns Hopkins), Lymphatics. VII., Irving Hardesty (Tulane), Nervous System. VIII., David Waterston (London), Special Sense Organs. IX., R. J. Terry (Washington, St. Louis), Respiratory System. X., J. Playfair McMurrich (Toronto), Urogenital System. XI., Abram T. Kerr (Cornell), Skin and Mammary and Ductless Glands. XII., John Morley (Manchester), Clinical and Topographical Anatomy.

The editor has obviously gathered his masons far and wide, and he is to be congratulated on having, on a foundation originally very good and well laid, erected a text-book which is second to none in completeness or in accuracy.

Pyelography (Pyelo-Ureterography): A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter.

By WILLIAM F. BRAASCH, M.D., Mayo Clinic, Rochester, Minnesota. Containing 206 pyelograms. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 323. Price 21*s.* net.

ALTHOUGH barely ten years have elapsed since first an attempt was made to take a skiagram of the pelvis of the kidney and the ureter, much progress has been made in this branch of surgical diagnosis, especially during the last three or four years. There are two difficulties in the way of a more extensive use of the method. In the first place, no small degree of manipulative skill is required to obtain the best results, and therefore it is almost of necessity left to those who have sufficient opportunity to obtain the practice required. In the second place, the interpretation of the skiagrams or pyelograms when obtained needs much care, in fact, they can hardly be correctly understood by those who have seen only a few.

A work on pyelography should therefore serve two purposes: it should assist the student in obtaining a knowledge of the necessary technique, and it should also offer him a series of pyelograms which will serve to educate him in the correct method of interpretation of the results obtained. The author has certainly succeeded in writing a very satisfactory book on the subject, and one which should prove of the greatest assistance to all who wish to obtain a knowledge of pyelography. He holds that on the whole the original solution of colloidal silver which was employed at the beginning by Voelcker and von Lichtenberg gives the best results, though he thinks the 10 per cent. solution is superior to the weaker solution first used. He agrees with nearly all other workers that the gravity method of introduction of the fluid is the best, and that the funnel should be raised from one to two feet above the level of the kidney; this would give at the most a pressure of a little more than a pound to the square inch. Stress is laid on the importance of not using any anæsthetic, for if the patient is unconscious the surgeon is deprived of the indication afforded by pain as a sign that sufficient fluid has been injected. No pain should be caused. If no hydronephrosis is present, 4 or 5 cubic centimetres are sufficient, and the author is in favour of using a very narrow ureteral catheter, so that any excess can readily escape.

The illustrations showing the pyelograms are decidedly good and form an instructive series for the student. The author is to be congratulated on his work.

A Campaign against Consumption. A Collection of Papers relating to Tuberculosis.

By ARTHUR RANSOME, M.D. Cantab., F.R.C.P. Lond., F.R.S., Consulting Physician to the Manchester Hospital for Consumption, and to the Bournemouth Hospital. Cambridge: University Press. 1915. Pp. 263. Price 10*s.* 6*d.* net.

IN the present volume Dr. Ransome has brought together a number of papers relating to tuberculosis. As he explains in the preface, most of them have been read before various societies, and have appeared in their Transactions or in medical journals. Others, again, have been separately published, but are now out of print.

Dr. Ransome entered into the campaign against consumption as far back as the year 1860, and he was able to start in Manchester and Salford a weekly register of all new cases of certain diseases, of which phthisis was one. Doubtless he is right in believing that these "weekly returns" were not merely the forerunners but actual incentives to the more complete "notification of disease" that has been established in recent years. Dr. Ransome was one of the first observers to draw attention to the importance of initiating measures for the prevention of pulmonary tuberculosis, and the essays on Consumption, a Filth Disease, and on the Prevention of Consumption

contain numerous suggestions for the eradication of the disease, many of which have since been carried out, and have assisted in lowering the mortality and incidence of tuberculosis.

In the volume there are 22 papers, which are divided into four sections. The papers in the first section are mainly practical in character, and deal with antituberculosis measures. In the second conditions of infection by tubercle are discussed. The third section contains records of original researches, such as the influence of iodoform on the body weight in phthisis, and the results obtained by intrapulmonary injections. The papers in the last section are mostly statistical in character.

This collection of first-hand information, written by an acute observer and a veritable pioneer in his province of medicine, deserves a cordial reception.

The Practice of Pediatrics.

By CHARLES GILMOUR KERLEY, M.D. Illustrated. London and Philadelphia: W. B. Saunders Company. Pp. 878. Price 25*s*.

IN this volume Dr. Kerley has presented the practical treatment of sick children in a very simple and unostentatious manner. His book is dedicated to his pupils, past and present, at the New York Polyclinic Medical School and Hospital; and for the assistance of students attending at such an educational centre, or who have passed through its portals, we regard this work as admirably suited. For a volume of such large dimensions the space given up to pathology and the academic aspects of medical science is certainly limited, but consequently more space remains for dealing with the clinical aspects of disease and its treatment. We are acquainted with no text-book on this subject which provides such exact details as to management and diet as this new work by Dr. Kerley: for American practitioners these features must render the book extremely valuable, especially in those cases in which they are deprived of ready access to consultants or to other sources of medical information; but for English practitioners who are accustomed to somewhat different pharmaceutical formularies and invalid dietaries it is possible that the volume will prove of less practical use.

In connexion with the general arrangement of the subject-matter and the account of the clinical course of the diseases included in the 22 chapters which constitute the book, little need be said, for the author has adhered most consistently to methods traditional in America. In fact, from the reviewer's point of view the whole of the subject-matter is most provokingly orthodox; little room is left for criticism except in so far that the more recent European literature has hardly received its fair share of notice.

It is only in respect of treatment that Dr. Kerley allows himself to embark on the hazardous paths of originality and speculation. From what we gather after a careful perusal of this new volume, the author is a teacher and a practical physician rather than an arm-chair doctrinaire. But perhaps the best method of conveying to our readers a general impression of the manner in which the practical details of treatment are marshalled in this volume will be to take a constitutional disorder such as rickets, and show by means of a short précis how a disease of this kind, of which the sole interest from the practitioner's point of view is treatment, is handled by Dr. Kerley. As regards infants, he says, in practically all cases a properly adapted cow's milk formula is the only treatment required; in the case of older children many of them cannot take cow's milk in quantities sufficient to make it of real nutritive value, but some are benefited by an ounce or two of butter daily. This is desirable since "fat aids in the production of heat and thus saves the tissues." With respect to hygiene, brine baths and oil inunctions are recommended; the former should be given at bed-time and be followed by inunction of goose-grease, unsalted lard, or cocoa-butter. Then follow instruction as to how the fat is to be rubbed in and what particular fat should be selected. Rachitic children are said to be very subject to head colds and bronchitis, and therefore every precaution should be employed to prevent exposure. As for drugs, in the author's experience these are of value only as they increase the appetite and the capacity for properly selected foods. Even phosphorus, which Dr. Kerley has used extensively, has not in his hands given good results; he says he has "yet to see a single case in which the beneficial action of the drug could be proved." It will thus be noticed that the treatment of this very universal disease is reduced to the very simplest terms—namely, one founded on the assumption that the symptoms are due to inanition. Were it not that some cases may possibly be due to other causes, as, for instance, over-feeding and acidosis, the comprehensive formula provided by Dr. Kerley would relieve the practitioner of many difficulties.

In the treatment of a very common complaint among children—namely, constipation—the author insists that dietetic treatment only should be relied upon, and he suggests that in the case of infants oatmeal water may be substituted for plain water or that a "laxative" sugar may be employed. We are somewhat surprised to hear that such simple expedients have proved so useful in the author's practice; for in view of the fact that recent investigations have shown that young children are intolerant of new forms of carbohydrate until they have acquired the capacity to elaborate the specific catalytic agent which is required to digest them, many physicians in this country have attributed the laxative effects of manna, new varieties of sugars, and so on, to the fermentative changes which they have occasioned in the bowel. Although the author is no believer in the drug treatment of disease, he speaks hopefully of the use of benzol in leukæmia. It will be interesting to observe whether his optimistic views are borne out by further experiences.

Enough, however, has been said to show that this work is essentially a practical one and in no sense a work of reference for the inquirer into the more recondite sides of pædiatrics.

Diagnostic and Therapeutic Technic: A Manual of Practical Procedures Employed in Diagnosis and Treatment.

By A. S. MORROW, M.D., Clinical Professor of Surgery in the New York Polyclinic. Second edition. With 860 illustrations. London and Philadelphia: W. B. Saunders Company. 1915. Pp. xviii.–834. Price 21*s*. net.

IN this volume Dr. Morrow has brought together a large number of the general medical and surgical procedures used for diagnosis and treatment. A few belong, as he says, to the domain of the specialist; the majority are such as the hospital resident and the general practitioner of medicine may find themselves called upon to perform. Operative methods have been omitted, except a few required in emergencies.

Beginning with an account of the administration of general and local anæsthetics, Dr. Morrow proceeds to sphygmomanometry, the transfusion of blood, saline infusions, venesection, the subcutaneous administration of drugs, and Bier's treatment by venous hyperæmia. Then follow chapters on the collection and preservation of pathological material, exploratory puncture, and the aspiration of cavities. The last 500 pages of the book are given to chapters on the examination and modes of special treatment required in diseases of the nose, ear, larynx and trachea, œsophagus, stomach, intestine, and urino-genital system. There is a fairly good index to the contents of the volume. The illustrations are line drawings and are quite adequate for their purpose, however inartistic.

In this volume nothing is said about the use of the ophthalmoscope, a most serviceable instrument in the diagnosis of various nervous disorders, renal disease, and diabetes. The account of spinal or lumbar puncture and injection (p. 277) would bear amplification, in view of the excellent technique elaborated in recent years by American physicians with experience of epidemics of cerebro-spinal meningitis.

With the above exceptions the book appears to fulfil admirably the purposes it was designed to satisfy. Dr. Morrow writes clearly and to the point, and has not loaded his text unduly with statistics or scientific discussions. To English readers the volume will appear unnecessarily large and massive. It may be warmly recommended to the attention of medical men in search of a practical text-book of modern clinical methods of diagnosis and treatment.

LIBRARY TABLE.

Modern Bone-setting for the Medical Profession. By FRANK ROMER, M.R.C.S. Eng., L.R.C.P. Lond. With 19 illustrations. London: William Heinemann. 1915. Pp. xi.–77. Price 5*s.* net.—This small book consists of four chapters on the history of bone-setting, its principles, and on the manipulations and exercises which are advisable in treatment, together with a chapter of notes on cases. It deals almost exclusively with the results of injuries of the joints and muscles, and scarcely at all with disabilities following on disease. The fashionable and successful quacks who practise bone-setting suggest that methods of treatment are known to them which are hidden from the qualified medical man. No such augurial secrets are revealed by Mr. Romer. This book should prove a useful guide to the successful application of well-known principles to the treatment of stiff and painful joints and of injuries of muscles and of muscular attachments. Mr. Romer does not discuss the psychological aspects of bone-setting, yet it has always seemed to us that the moral effect of authoritative and dogmatic statement must have a great deal to do with some of the bone-setters' most startling cures. For instance, a patient may have been successfully treated by straightforward methods, which, however, have stopped short of the authoritative assurance of cure. He is perhaps still wearing some splint or bandage as a precaution, becomes impatient, and consults a bone-setter, who after manipulation tells him to give up all treatment, as he is now cured. He was cured before had he only known it, but he is now assured of it and is well. "Throw away that d——d thing and walk round the park!" says the bone-setter. A miracle is apparently worked, and gratitude goes the wrong way.

Infant Health. By Miss J. C. C. MACMILLAN. London: Henry Frowde. 1915. Pp. 128. Price 2*s.* net.—The author of this little manual, which is intended for district visitors, nurses, and mothers, is an inspector of midwives and health visitor at Oxford, and in these capacities she should be well qualified to judge of the needs of those whom she addresses and the degree of their understanding. We cannot help thinking, however, that it requires very exceptional knowledge and ability to write comprehensively and intelligently on the great fundamental truths of physiology and hygiene, and at the same time to make the information afforded sufficiently simple to be understood by unprofessional and, relatively speaking, uneducated readers. We do not think that Miss Macmillan has succeeded in achieving these results. But we have not detected any serious errors, as was only to be expected from a work for which Sir William Osler has written a preface. We wonder whether "a pregnant mother can really do a great deal for the expected baby's bones and teeth if she will take porridge regularly, also oat cake." The Scotch ought to have very good teeth if that is the case.

The Selection of the Recruit. By S. T. BEGGS, M.D. Belf., Captain R.A.M.C. (Reserve). London: Baillière, Tindall, and Cox. 1915. Pp. 108. Price 2*s.* 6*d.* net.—Recruits are under normal conditions accepted for service between 18 and 25 years of age for the Line, and from 17 to 30 years for the Special Reserve. During the present crisis the limits have been extended to 19 and 38 (now 40) years. Consequently the standards adopted need some modification. Captain Beggs gives a clear description of the developmental processes that go on during the recruiting age-period and the influence on them of the various factors of occupation, feeding, defective teeth, &c. The method of procedure in physical examination is explained in detail and advice given on doubtful points. A valuable contribution to the precise knowledge of the physical characteristics of young adults is contained in the sixth section, where statistics are given in detail of 918 recruits found "fit" and 848 found "unfit"; of the relationship of occupation to physique and development; also of visual acuity and of pulse-rate. This book is an example, unfortunately a rare one, of the large amount of valuable knowledge that may be acquired, and made useful to others, by the careful performance of what are often considered to be uninteresting routine duties.

JOURNALS AND MAGAZINES.

The Philippine Journal of Tropical Medicine, Vol. X., Section B, No. 1.—Major E. L. Munson, of the Medical Corps of the U.S. Army, and Adviser to the Health Bureau of the Philippine Islands, contributes an article on Cholera Carriers in Relation to Cholera Control, in which he gives an account of the methods employed for the detection of carriers during the recent outbreak in Manila. No fewer than 657 carrier cases were discovered, 128 of them being convicts confined in the Bilibid prison. He states that lack of the use of toilet paper, and the disgusting habit of using the fingers instead of paper after defæcation and then eating food with impure hands out of a common dish, were channels through which the infection of cholera passed from the carrier to other persons. Public water-supplies and articles of food could be eliminated on this occasion as vehicles by which the disease was diffused. Flies, it appears, played an entirely insignificant part in the spread of the infection in

this instance. The prompt detection of carriers and their immediate isolation are of the first importance in checking cholera in a place like Manila. For this purpose the provision of laboratory facilities for the examination of the stools is absolutely essential.—Dr. Otto Schöbl, of the Biological Bureau, Manila, also contributes a paper on Cholera Carriers, and discusses the question, How long is a cholera convalescent infectious?—Dr. Lawrence D. Wharton writes on the Development of the Eggs of Ascaris Lumbricoides, an intestinal parasite which is of great frequency in the Philippine Islands. He made a series of experiments almost entirely with eggs laid in the laboratory by living worms obtained from the local morgue.—The Occurrence of Bacillus Coli Communis in the Peripheral Blood of Man during Life forms the subject of a short article by Dr. H. E. Ruediger, of the Bureau of Science, Manila. He states that micro-organisms corresponding in morphological and cultural characters to B. coli communis may in certain cases be obtained from the peripheral blood of patients during life. Invasion of the blood by such organisms is not necessarily terminal infection, as is shown by the large percentage of recoveries therefrom. Such infection may be considered primary. The agglutination test shows that these organisms differ from one another.—Dr. Ruediger contributes another paper on the Preparation of Tetanus Antitoxin, and states that a suitable strain of the tetanus bacillus will usually produce potent toxin when grown in nearly neutral glucose broth under hydrogen. The acidity of the broth will rise to more than 2 per cent. normal acid, and it should be neutralised with sodium hydrate before it is injected into the horse. The power of producing tetanus antitoxin differs greatly in horses.—Dr. Fernando Calderon writes on Cæsarean Section in the Philippine Islands, this communication being his second report on the subject. In this contribution he gives particulars of 17 cases of operation, in 4 of which the mother died. In 5 instances the babies were still alive at the time of writing, in 7 others the infants lived only a few hours, and in 5 cases the babies were still-born.—Surgeon Woodward, of the U.S. Navy, relates a case of obstructed labour and Cæsarean section, from which the mother recovered but the child only survived 17 hours.—Two compounds of emetine, namely, emetine mercuric iodide and emetine bismuthous iodide, which may prove of service in the treatment of entamœbiasis are described by Dr. A. G. Du Mez, of the School of Pharmacy of the University of the Philippines.—Dr. José Albert discusses the Treatment of Infantile Beri-beri with the Extract of Tiqui-tiqui (rice polishings). This form of beri-beri is responsible for a large percentage of the infantile mortality in Manila. Unfortunately, though the results secured by the treatment with tiqui-tiqui are distinctly good, the taste of the remedy is disagreeable and unpalatable. So much are the local medical faculty impressed with the value of this method of treatment that they have petitioned for its free distribution among the poorer classes of the city.—In an editorial the work done in the investigation of vitamines by Dr. Casimir Funk is eulogised, and this expert is urged to publish as speedily as possible the further results of his experiments with a view of getting vitamines produced and utilised as practical therapeutic agents.—The number closes with an account of the opening session of the eleventh annual meeting of the Philippine Islands Medical Association in November, 1914, at Manila.

Malaria e Malattie dei Paesi Caldi. Anno VI., Fasc. IV., August 20th. Rome: Via Farini 62.—This issue contains two papers on Malta or undulant fever, one by Dr. G. Vernoni describing an autochthonous case of the disease occurring at Bologna. The malady is very rare in Northern Italy and the patient had resided in the same place continuously for some months. No other member of her family was affected. Although belonging to a family of peasants, she had been occupied solely with domestic duties. There were no goats in the place and the patient did not remember ever having seen one; certainly she had never drunk goat's milk. There were numerous cows and sheep, but the patient drank very little milk as a rule, but took more after parturition, which took place a few weeks before the illness began. Although not probable, the possibility of a milk infection could not be excluded.—The other paper is from the pen of Professor Gabbi and has reference to three cases presenting interesting and rare complications—namely, paroxysmal hyperpyrexia, vaso-motor angina pectoris, and multiple paramyoclonus.—Dr. F. Giugni has succeeded in reproducing cutaneous leishmaniasis in a monkey from a case of oriental boil observed in Italy, and gives photogravures of the two cases.—On the same subject of leishmaniasis Dr. G. Spagnolio describes a case of kala-azar in a boy under 4 years of age complicated with mitral insufficiency.—Dr. G. Cassone contributes an interesting clinical review of climatic bubo with reference to its symptoms, etiology, pathological anatomy, and geographical distribution.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

CHYMOL.

(THE CHYMOL CO., ARMOUR AND CO., LIMITED, ATLANTIC HOUSE, HOLBORN VIADUCT, LONDON, E.C.)

Chymol is a perfectly homogeneous syrupy mass containing emulsified fats from bone marrow and egg yelk and the sugar of malt. Under the microscope globules of fat are not seen until water is added, emulsification having been facilitated by the addition of pancreatin. Through the process of preparation the temperature is never allowed to rise above the thermal death-point of the enzymes. The enzyme reaction was well marked. According to our analysis, the broad results were as follows:—Moisture, 20·32 per cent.; mineral matters, 0·75 per cent.; proteins, 4·84 per cent.; fats, 14·25 per cent.; malt sugar, 51·61 per cent.; and glycerine, 8·23 per cent. The mineral matter contained iron derived from the red bone marrow used in the formula. The flavour is agreeable, although no artificial additions have been made in this respect. Having regard to the physical and chemical condition of chymol there can be little doubt of its easy assimilability, while it contains all classes of food material, carrying in the favourable influence of active enzymes, the rôle of which in nutrition is now known to be important.

CYTO-SERUM.

(M. BRESILLON AND CO., GAMAGE BUILDINGS, HOLBORN, LONDON, E.C.)

"Cyto-serum" is described as an intensive, painless, arsenical medication. The arsenic basis of the serum is the cacodylate of soda, the tolerance of the organism to which has long been known. It is even asserted that this tolerance is as great as that shown when salvarsan or members of the "606" group are administered. The formula of cyto-serum is as follows: Anhydrous alkaline cacodylate, 0·3 gramme; sulphate of strychnine, 0·001 gramme; special isotonic serum sufficient to make up to 5 c.c. This is the content of the glass ampoules which we have examined. There was not the slightest evidence of arsenic being present in any other form than the methyl combination (cacodylate). There was, in other words, no free or inorganic arsenic present. We confirmed the presence of strychnine, and the estimation of the salt present showed an isotonic solution. Cyto-serum is injected in the post-trochanteric region, and favourable accounts are given of its employment in anæmia and chlorosis and in nervous depression. It appears to increase the activity of the oxidation processes, and in the thousands of injections made no unpleasant side symptoms have been reported. The use of an isotonic saline solution in conjunction with the cacodylates is likely enough a suggestion of therapeutic importance.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 25, 1915.

Industrial Fatigue and Munition Work.

ALTHOUGH it would be inaccurate to describe munition work as a new industry in this country, it is nevertheless true that its expansion is almost as likely to provide problems of industrial medicine as if it were entirely novel. Large numbers of factories and works of many different descriptions have been converted to some or other of the varied processes into which the highly specialised business of shell and explosives manufacture is subdivided. Many kinds of labour, male and female, skilled and unskilled, manual and other, are required, and very large numbers of workers have been enrolled, to many of whom the conditions of organised and specialised labour are totally foreign. It is most necessary that, so far as is possible, all causes of diminished efficiency in munition works shall be remedied, or rather prevented; and few such hindrances of output can be of greater potential magnitude than those which fall within the sphere of preventive medicine. This branch of what may be termed the staff work of the munitions campaign has evidently not escaped the higher command. For it is announced that the Minister of Munitions of War, with the concurrence of the Home Secretary, has appointed a committee with the following comprehensive reference: "To consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the personal health and physical efficiency of workers in munition factories and workshops." The committee is under the chairmanship of Sir GEORGE NEWMAN, than whom no better choice could have been made. Eleven members have been nominated to the committee, a number too large for effective working in most affairs but possibly demanded by the complicated and varied tasks involved in the investigations required. Three representatives of the Factory Department of the Home Office are included, two men and one woman. There are also four medical members (not counting the chairman), three of whom are professed physiologists; physiology would appear to be over-represented as compared with clinical medicine. A Labour M.P., an employer, and a lady of experience in social legislation complete a strong committee.

The prime object of this committee is to preserve the health of munition workers in order that the output of munitions may be kept at the highest possible level. So much is obvious, but the pursuit of this object leads into many by-paths, and even involves questions which are not medical at all. For instance, it is conceivable that the removal, from amongst the general population of a large number of physically select men for active service in our armies might reduce the general standard of physical efficiency among the rest of the labouring classes and so lead to otherwise inexplicable figures of disability among munition workers. Several reasons could be adduced to show that no such contingency is likely, but it cannot be excluded beyond doubt; at least, the point will serve as an illustration of the remote and debatable channels into which the committee may have to divert a part of its energies. Fortunately, a much larger part of the problems to be tackled will be of a more direct medical and medico-social significance; and on many of them experience is already accumulating which will help as a guide for the future. It is well known, for instance, that many volunteer workers are attending in different capacities at munition works for week-ends, so as to give the regular workers the benefits of one or two days off without interrupting for a moment the continuity of the manufactures or diminishing the output. The principle is wholly admirable, and the system is said to work well; yet some degree of central control in directing its application would in all likelihood lead to still greater economies of health and improvements of results. Munition workers of all grades ought to be, and in a vast preponderance no doubt are, imbued with as absolute a self-abnegation as those who serve in the firing line. They must one and all, if the war is to be won, work their best and hardest how, where, and when they are ordered. Reciprocally, there is an equal responsibility upon those who direct the labours of the subordinate masses to see that every precaution is taken to preserve the health of the latter. Conditions must be made and maintained as favourable as possible to the health of the employees, and hours of labour must be so adjusted that the maximum number of workers are speeded up to the highest level of energy consistent with the minimum proportion of breakdown from overstrain and fatigue. What hours fulfil such a definition the committee will have to consider, and the task will not prove easy; for, of course, some kinds of labour are much more exhausting than others, and no hard-and-fast rule can apply to all.

In especial the question of overtime is deserving of their expert attention. On the one hand, it has to be remembered that hours of labour are now so much shorter than they were a few years ago that much is now regarded and paid for as overtime which was formerly part of the day's work; and there have been sinister revelations of deliberate slacking during working hours in order to get the extra rates of pay for overtime afterwards. On the other hand, it is equally true that, as labour leaders have long been preaching, excessive overtime working so strains the powers of the worker,

that both the quantity and the quality of work done suffer. There are few occupations in which overtime work is more common and less recompensed than in general medical practice. There is also, we honestly believe, none in which overtime work is done in a better spirit and of a more excellent all-round quality. But for all that, and indeed because of it, the medical profession is well aware that heavy overtime working for any considerable time leads to deterioration of quality and is not the right method for securing any real or valuable increase of output. It will be for the committee to advise the Minister of Munitions just to what extent he can properly strain his workers so as to ensure the largest possible production of shells, bullets, explosives, bombs, and all the rest of those engines of destruction whose results the medical profession at large is so busily engaged in counteracting.

Highlands and Islands Medical Service Board and its Critics.

A SUMMARY was given in THE LANCET recently of the documents issued by the Highlands and Islands Medical Service Board with regard to the distribution of the Highlands and Islands Medical Service Fund. Since that date many medical practitioners affected by the Board's scheme have discussed the proposals, and an appreciable amount of criticism has made itself heard. An opportunity for free discussion of the whole matter was, however, given at a meeting of the Scottish Committee of the British Medical Association held at Perth on Sept. 10th, when Dr. NORMAN WALKER, who is a member of the Board, as well as the Direct Representative for Scotland on the General Medical Council, was able to be present, and in order to correct mistaken impressions he made clear the administrative policy contemplated. As a result a resolution was proposed and carried reciting and accepting Dr. WALKER'S principal explanations, and an amendment asking for postponement of a decision pending further inquiries only found two supporters.

The terms of the resolution form a convenient summary of some of the points raised. By it the Scottish Committee found "that the anxiety which the report has caused in certain districts is due to misapprehension of the import of the terms; that the insurance mileage grant is absorbed and supplemented by the subsidy of the Board, and that the conditions of practice are to be settled by individual agreements at the discretion of each practitioner." This, of course, does not cover the whole of the criticism levelled at the Board, but the committee did well not to commit itself to condemnation or approval in matters of detail affecting members of the medical profession in different degrees according to their circumstances—matters upon which they might be expected to hold varying opinions. But one of the criticisms not referred to in the resolution has been to the effect that the Board ignored the state of war now prevailing and that it ought not to have introduced its scheme at a time of national crisis, in the absence of many medical men upon military duty, and when those remaining are fully occupied with civil work. This as it stands is legitimate criticism. In time of peace a scheme of such importance could be introduced better than in time of war, but the Board did not ignore the condition of war, for it referred directly to it in one of its explanatory pamphlets, as was pointed out in our previous article; and it is hardly conceivable that the medical men about to be recipients of a share in the grant will quarrel with the Board for proceeding to business without further delay. They are not likely to complain of such subsidy being commenced at once, or to ask for it to be postponed until after the declaration of peace. Again, complaint has been made that the distribution of the fund, so far as it affects medical men, will entail upon them the keeping of prescribed accounts and the furnishing of evidence as to professional emoluments, with liability to inspection of such accounts, and to enforced compliance with conditions which may prove to be arduous and inconvenient. As to this, it may be expected that there will be difficulty, at any rate until the routine of the new scheme is familiar; but the adoption generally of a card-index system will wonderfully lighten the labour, and it will no longer be necessary to make out claims for mileage. It was not in any case to be supposed that those administering an annual sum of £42,000 for the general improvement of the medical service provided for crofters, cottars, and others in like circumstances would do so without business-like precautions to secure that end. It is admitted that the conditions under which medical practice is carried out in Perthshire differ from those prevailing in remote Highlands and in the islands which have hitherto suffered so severely from lack of medical service, and misapprehension arose from the phraseology used with regard to the handing over of the £10,000 mileage grant to the Board. It was feared that the altered conditions of the administration of this sum would mean forfeiture by medical men of money which under existing agreements was their due. As a matter of fact, under the new conditions, instead of the grant being diminished it is increased, appearing under the name of subsidy instead of under the name of mileage. We understand here that the increase referred to will be due to the sum now to be distributed being paid not only in respect of attendance upon insured persons, but for medical service rendered to poor persons generally, many of them not being insured.

The remaining point referred to in the resolution of the Scottish Association—that of individual agreements made with individual practitioners in accordance with the conditions of their practices

—is very important. Much will, no doubt, depend upon the spirit in which these arrangements are made, but we have no reason to anticipate that a Board upon which the medical profession is so well represented will treat members of that profession with anything but the fairest and fullest consideration. If the proposals of the Highlands and Islands Medical Service Board received hostile treatment at the hands of some of those who addressed the meeting of the Scottish Committee of the British Medical Association at Perth, there were at least equally strong opinions expressed in favour of the new scheme. For example, Dr. J. WISHART KERR held the view that under it the medical men practising in the Highlands and Islands would be "infinitely better off in the future than in the past," and Dr. J. ADAMS inquired how medical men would be rendered worse off by being asked to take payment for a large amount of work which they did at present without payment. We certainly find ourselves in accord with the argument addressed to the Committee by the last-named gentleman, who urged them not to delay in accepting on behalf of those now making perhaps less than £200 a year by their practices the offer of a considerable increase on that sum, combined with improved facilities for carrying on their work. Moreover, we regard as timely his reminder that the Act was passed primarily to provide medical attendance for people who do not get it. This would naturally be resisted if the provision was to be made at the expense of the medical profession; taking as it does the form of a subsidy to practitioners, it should hardly provoke antagonism. If, however, in the future there should be, as no doubt there will be, necessity for amendment and readjustment in the light of practical experience acquired in the working of the Act, we have no doubt that the medical practitioners directly concerned, aided by the Scottish Committee of the British Medical Association, and by the goodwill of the Highlands and Islands Medical Service Board, will be able to secure fair treatment, and that they, no less than their patients, will find their position ameliorated by the Medical Service Fund.

DONATIONS AND BEQUESTS.—The late Mrs. Isabella Elizabeth Rodney has bequeathed £2500 to the University College Hospital.—By will the late Mr. Ludwig Ernest William Leonhard Messel has bequeathed £1000 to King Edward's Hospital Fund, £200 each to the County Hospital for Sussex and for such charitable institutions at Darmstadt as the trustees may select; £100 each to the Society for the Prevention of Cruelty to Children, the Hospital for Sick Children, Great Ormond-street, the Samaritan Free Hospital for Women, and the East London Hospital for Children and Dispensary for Women at Shadwell.—The late Mr. Robert Gilkison Allan has left £500 to the Liverpool Medical Missionary Society.

Annotations.

"Ne quid nimis."

THE BUDGET.

GREAT as is the increase of taxation brought about by Mr. McKenna's War Budget, it cannot be said that the burden is heavier than reasonable persons expected, in view of the colossal expenditure to which this country is committed in carrying on the war. That the proposals of the Chancellor of the Exchequer have been universally well received is an earnest that all classes are agreed that the present is not the time to whine at the pinching of the individual shoe, and this to some extent proves that the incidence of taxation is general. For the medical man the increased taxation will follow on the lines of that for the layman, except that the medical man cannot, as the layman to some extent can, limit the use of his motor-car. The medical profession largely use motor-cars and must find the expenditure for petrol heavily increased by the additional tax on this commodity. New import duties amounting to 33⅓ per cent. are placed upon motor-cars and (presumably) upon accessories and other articles, which will mean additional expense to the medical man who is forced to use American cars, tubes, covers, and so on, in consequence of inability to get supplies from English houses, which are unable to meet private orders on account of Government demands. The postal and telegraph changes are far-reaching, the limit of weight for a penny letter now being one ounce instead of four ounces, and the charge for a postcard one penny. The halfpenny postage on inland packets and on newspapers is raised to 1*d.*, and each inland parcel pays 1*d.* more. The minimum poundage on postal orders is to be 1*d.* instead of ½*d.*, and an addition of 3*d.* is made to all inland telegrams. The unlimited telephone rate will be £20 instead of £17 in London, and £12 in the provinces where such unlimited services are in operation. The doctor will also have to pay more for his journals in consequence of the abolition of the halfpenny newspaper rate, but in this connexion he may expect a welcome relief, for it is unlikely that his letter-box will be daily stuffed with circulars from advertising tradesmen and foolish quacks. We note with satisfaction that the stamp duty upon patent medicines is increased.

The increase of the income-tax by 40 per cent., one-half of which is to be collected this year, was inevitable; the rise in this tax is, we believe, 10 per cent. less than was generally anticipated. The limit of exemption is reduced from £160 to £130, and the maximum abatement is lowered to £120. Super-tax on the higher incomes has been considerably increased; but this will affect but few of our profession, which also is not likely to be mulcted by the tax on war profits. Payment of income-tax is now to be allowed in two instalments—on Jan. 1st and July 1st—which may well meet the convenience of the poorer amongst us, and provision is made for the repayment of the additional tax where it can be shown that an income is less by one-fifth than the income on which tax has been paid owing to the operation of the three years' average. Where income has fallen more than 10 per cent. special relief will be granted.

EDWARD LAWRIE AND THE STORY OF CHLOROFORM.

WE have recently recorded the death of Lieutenant-Colonel Lawrie, but the records of a man's life, when these deal with the routine practice of surgery, sometimes fail to afford a just appraisement of merit. It is so with Edward Lawrie, who, in spite of his frequent excursions into the sphere of medical polemics, sought a bloodless victory for the opinions which he so ardently believed and advocated. Undoubtedly his work was excellent and will live after him, even though the dogmatic side of his teaching has been already toned down and his favourite theories have undergone material modification. Lawrie sought to prove the eternal verity, as it seemed to him, of Syme's somewhat truculent pronouncements on the action of chloroform; and though the disciple failed to accomplish his self-imposed task, nevertheless he achieved a great work—he compelled the profession to restudy the chloroform problem and to reconstruct the system by which that anæsthetic should be given. It may be interesting to readers of THE LANCET to note the part which this journal has played in the chloroform question. Mr. Thomas Wakley, F.R.C.S., later editor of THE LANCET, in about 1855 undertook experiments into the action of this anæsthetic, and his conclusions, like those enunciated by a Commission appointed about that time by the Société d'Emulation of Paris, supported the contention of Simpson and Syme and their school that chloroform kills through respiratory, not through circulatory paralysis. Sibley it was who first contested this view, and his opinion in a modified sense is now generally adopted. Lawrie undertook experiments in Hyderabad with a view to settle the dispute. He was ably assisted by various surgeons, the merit of whose work can hardly be overestimated. The report of these experiments was issued as the First Hyderabad Commission. The limited scope of this research made it inevitable that its shortcomings should be animadverted upon, and we pointed out in these columns that the experiments were too few in number to prove anything, and, further, that they had been made without adequate controls, while many physiological details had been overlooked. Lawrie with admirable courage faced his critics, and it was through his initiative and by the public-spirited beneficence of His Highness the Nizam of Hyderabad that the Second Hyderabad Commission was launched and financed on a most generous scale.[1] THE LANCET was invited to send a representative to India to advise upon the experiments, and Sir T. Lauder Brunton undertook this duty. The report of this Second Commission and Sir Lauder Brunton's views upon it were issued in our columns. The concluding pages of the history of the Hyderabad Commissions were formed by an inquiry instituted by ourselves into the clinical evidence of the action of chloroform derived from reports of surgeons throughout the world. That Lawrie should have been disappointed with the reception of the labours of himself and his co-workers was to be anticipated. His early association with Syme, a man of convincing personality, gave to Lawrie his faith, and to it he adhered until his death with something like a fanatic's tenacity. To support this faith he mobilised the skilled physiologists of Cambridge and of the United States. Various subsidiary reports upon the subject were issued. Whenever results appeared to Lawrie to be adverse he reinvestigated, adopting methods, such as the now historic cross-circulation experiments, which had not found a place in the Hyderabad scheme. For his enthusiasm, for his unconquerable efforts to try every means whereby the truth should be established, Lawrie earned perhaps insufficient praise. The Hyderabad Commissions and those subsidiary to them accumulated a vast amount of knowledge, and this has influenced both the science and the practice of anæsthesia. The lesson which so many engaged in these researches, and Lawrie among them, failed to learn was that the chloroform problem is a wholly complex one; that the anæsthetic's action cannot be calculated only in terms of respiration, of circulation, of nerve controls, or what not; indeed, that it must present different aspects according to the strength employed. Undoubtedly its results are bizarre, since the physiological conditions of the patients who inhale it themselves vary within such wide limits. It need not, however, be assumed that the labour expended and the money spent on the Hyderabad Commissions and kindred research have been wasted or have resulted in contradictory findings. THE LANCET in criticising the first Commission insisted upon examining the actual tracings obtained in the experiments, and so in the second Commission such tracings were preserved, when it was demonstrable that they did not in every case bear out the interpretation which Lawrie put upon them. Snow, whose work stands out monumental because he was able to anticipate a great part if not all of the subsequent lines of research, in spite of the fact that he was in possession of only the crudest armamentarium of apparatus, arrived at conclusions which have stood the test of subsequent investigations. A study of Snow's closely reasoned pages shows that he appreciated the fallacies of Syme and his school, and, indeed, Snow's very words can be quoted to disprove many contentions advanced by Lawrie and his fellow-workers. Yet to Lawrie we owe a debt of gratitude since his investigations gave us light, while his enthusiasm and dogged perseverance heartened other workers. Though such labours may bring neither honour nor advancement, they tend ever towards the revelation of truth.

[1] The Hyderabad Reports, with protocols including the reproductions of the manometric tracings, were published in a volume by THE LANCET. Full details of the work are presented in this publication.

THE PLEOMORPHISM OF THE MENINGOCOCCUS.

IN another column we publish an article by Dr. Alexander Lundie, Mr. D. J. Thomas, and Dr. S. Fleming, officers in the Royal Army Medical Corps, dealing with the pleomorphism of the meningococcus. The tendency of this organism to assume involution forms is generally recognised, but further investigation will be required before the various forms can be correlated. The authors of this communication refer to the organisms found in nasal mucus of patients suffering from cerebro-spinal meningitis, which have been described by some observers as "streptococci." Attempts to cultivate these organisms, however, showed that this process was attended with considerable difficulty, and involution forms were numerous and extraordinary. Whether these organisms were the same as have been described by other investigators remains doubtful, but the publication of this article will add to the testimony already received as to the evolutionary descent of the meningococcus.

There are many uncertain details still remaining which require elucidation in regard to pleomorphism in bacteriology, and observations on the meningococcus are especially interesting at the present time owing to the number of cases of cerebro-spinal meningitis which have occurred during the last 12 months.

PHYSICAL TRAINING.[1]

WHEN the people of the Commonwealth of Australia set about the work of universal military service they did not falter, but rightly considered the matter comprehensively. It very soon became apparent that if they wished for military efficiency a beginning must be made long before the age for service in the ranks of the army. In order to have the best material the physical training of boys must be taken in hand and carried on continuously from school age until military age. Obviously this work could not be done without teachers, and although there were more than a year ago some 4000 teachers of physical training for the junior cadets, the Ministry of Defence was not satisfied that the best was being done, and accordingly despatched Lieutenant-Colonel Bjelke-Petersen to Europe to study the systems in use there. The result is now published in an interesting report which would apply in many respects to the United Kingdom as well as to Australia. For we must dismiss from our minds the belief that the Australian is generally a countryman. Like many other countries, Australia manifests the modern tendency of aggregation of the population in the large towns, and consequently a very large proportion of recruits is composed of town-bred youths. In order to provide teachers Colonel Petersen advocates the institution of training colleges, which should combine all the best features of those in Europe, and advises that physical training should be made a "failing" subject—that is to say, a subject in which all teachers must pass, no matter how highly qualified they may show themselves to be in others. Teachers should be instructed to pay special attention to delicate children with a view to improving their development and correcting abnormal tendencies. In Sweden, he says, such pupils have three lessons weekly after school hours under an expert teacher, and in London the authorities are experimenting with such a scheme. Another great desideratum is the provision of playing grounds, adequate in size and in numbers, where children can indulge in healthful play within a couple of minutes' walk from their homes. Necessarily this would require a very large number of small playgrounds in any large town, but the expense would be well repaid in the well-being of the community. Much has been done in this direction in England, but unfortunately much more remains to do. In a well-planned and harmonious scheme of physical training the military part should be but the continuation and the crown of the previous civil training, and all teachers should work together to one end, the production of a nation of athletes, by which is meant, not a nation of record-breakers, but a nation whose members have well-developed healthy bodies capable of the best and highest achievements for their own and their country's good. This was once the Greek ideal and should be ours. But unless the teachers themselves are thoroughly trained the best results will not be got, and there will be danger of harm being done instead of good to some at least of the pupils; therefore a proper system of training colleges for teachers and of supervision of teaching must be established. Australia before the war had set an example of prudence and forethought in establishing a system of universal military training. If this report is acted upon she will also have set us an example in national physical education which will be worthy of our imitation.

[1] Australian Military Forces. Physical Training. Report by Honorary Lieutenant-Colonel C. Bjelke-Petersen, Director of Physical Training. Albert J. Mullett, Government Printer, Melbourne; Australia Commonwealth Offices, 72, Victoria-street, London, S.W.

THE TREATMENT OF PROGRESSIVE PARALYSIS BY EHRLICH-HATA PREPARATIONS.

Dr. V. Massarotti in *Il Policlinico* (Sept. 1st, 1915) gives an analysis of 830 cases of general paralysis treated by intravenous injections of "606" and "914," and compares them with 10 cases treated by himself in a similar way. By taking the precaution of injecting only fresh solutions made with recently distilled water, of leaving an interval of at least eight days between one injection and another, and keeping the patient in bed for at least 12 hours, by excluding cases with a tendency to apoplectiform or epileptiform seizures, and by not exceeding the dose beyond 1 centigramme for every kilogramme of the patient's weight, he has had no untoward results, nor has he found any among recorded cases when similar precautions have been taken. Among the positive results obtained by several observers may be noted: mitigation of physical symptoms, especially improvement in reaction of the pupil to light; diminution of arthritic pains and better general health; and disappearance of, or marked amelioration in, the mental phenomena, even resulting in discharge of the patient and his return to social life. A study of the author's cases, and of those collected by him from the literature of the subject, shows how in incipient forms of general paralysis, when as yet the mental symptoms are limited to a simple neurasthenia and the bodily symptoms are not serious, this method of treatment may induce a definite and rapid improvement either by direct action of the remedy or indirectly by general improvement in the whole organism. Also in those early forms in which mental phenomena predominate in the form of exaltation of a minor degree or of slight depression, signs of dementia or serious bodily symptoms being absent, an improvement in the mental symptoms may occur, while in those patients with few bodily symptoms but definite signs of dementia, treatment with "914" seems to check the progress of the disease. Out of the 830 cases collected by the author marked and permanent improvement was noted in 1·08 per cent., slight improvement in 25·18 per cent., cases which derived no benefit were 69·39 per cent., while the number of those whose condition seemed to become worse was 4·46 per cent. Dr. Massarotti thinks that 1·08 per cent. of arrest of the disease should encourage us to persist in this method of treatment, nor should we be deterred by the 4·46 per cent. of those who became worse, as this might have occurred in any case. The fact that 25·18 per cent. derived some benefit should not be lost sight of, even though it only served to render the life of the patients more tolerable. When, however, the bodily symptoms are severe this treatment should not be used, since besides running the risk of the case becoming worse, at most only the permanence of the *status quo ante* is obtained. The treatment should be reserved for incipient cases only.

GRIME'S GRAVES.

IT appears from a valuable paper by Mr. A. E. Peake in the recent report of the Prehistoric Society of East Anglia that the Saxons of the Heptarchy applied the name Grime, Grim, or Grimmer to all old earthworks, walls, tumuli, and so forth, which appeared to them mysterious and incapable of explanation. We suggest that Grim was not a particular hero, witch, or watersprite, but simply a generic name applied by our remote ancestors to relics supposedly Norse or Danish, but more probably Danäan or early Celtic. The Danäans or fairies infested Ireland long before the Danes, to whom they seem to have passed on their name by a familiar process of false analogy. "Grim" as implying witchcraft or mystery may indeed be only a translation of "Danäan" or "fairy," for so the word may be rendered. The "Tribes of the God Danu" were indeed a vague legendary people. Peasants at Moytura gravely refer to them as "fairies." The fairies were probably the little Cave men or Drift men, or prehistoric men in general, dimly remembered for their pointed caps, of which specimens have been found in bogs. They are akin to trolls or dvergs. The proper meaning of "Grim" need not have been touched upon had it not been raised and ably discussed by a medical man, who notes that our profession contains many members with names of venerable antiquity derived or compounded from Grim—e.g., Grime, Grimes, Grimmer, Grimsdale, &c., just as our survey maps contain such place-names as Grime's Graves, Grimspound, and Grimsdyke. The Grime's Graves of Norfolk have now been excavated, and prove to have been an early Neolithic or even Palæolithic flint mine, whence prehistoric man in Britain derived weapons of offence against wild beasts and enemies, and for the chase of the red deer that once abounded in East Anglia. These mines in Norfolk, as also others in Belgium, France, and Sweden, were worked by means of picks made out of the antlers of the red deer. These have been described by Mr. W. G. Clarke, of Norwich, honorary secretary of the society, in the report, while the mammalian and human bones are learnedly discussed by Dr. C. W. Andrews and Professor Arthur Keith respectively. The latter authority gives a full account of the skeletons of a young man under 30 and of a young girl which were found in the graves. Both man and girl appear to have been of puny stature. They were slight of build, but their brain capacity appears to have been even higher than the modern average. The old-fashioned in such matters of anthropology are tempted to ask: When was the brain of our rudimentary ancestors really small, for small it must have been at one time, since man has been evolved from lower forms? Nay, more, Does large cranial capacity point to a highly developed and many-fissured brain? A big box may exist for the storage of man's wits, but how was that box filled? And again, May we not suppose that large cranial capacity in the earliest discovered brain-pans was presumably in the nature of a spare room which it took ages to fill? Prehistoric man in Britain seems to have had the makings of a good brain, and there can be little doubt that he conquered his environment through and conterminously with brain expansion. At an immensely remote epoch the Briton mined flints and worked them, and was thus enabled to carry on to a successful issue his incessant struggle for existence and food as against the wolf, man's chief enemy in earliest times. That the graves do not seem to have been fortified leads one to suppose that the flint mines were respected by neighbouring families or tribes—that, in fact, they were an early market or place of exchange, an ancestor of modern commerce. It is even probable that, as time went on, the flint miners ceased to be fighters and became the ancestors of our modern miners. Flint-workings among the aborigines of Central Australia to-day seem to reproduce prehistoric conditions. On reflection nothing could be more interesting than the question of how man's body has been built up in Britain, through what sufferings, warfares, and long processes of meat-eating, weapon-making, and hunting. The elucidation of Grime's Graves, undertaken by many medical men amongst others, thus throws a fascinating light upon the whole question of human origins in Western Europe.

THE TREATMENT OF BERI-BERI.

THERE are few places in which the study of beri-beri can be better carried out than in the Philippine Islands, where many of the native population, and especially the infants, suffer from the disease. Since the American occupation of the islands the medical officers sent thither by the Government of the United States have undertaken valuable research work on the subject and contributed in no small degree towards the clearing up of some of the outstanding problems relating to beri-beri. One of the latest contributions is a report, published in the *Philippine Journal of Science*,[1] giving the results of the experimental treatment of 27 cases of human beri-beri with different constituents of rice polishings by two members of the Bureau of Science at Manila—namely, Dr. R. R. Williams and Dr. N. M. Saleeby. These experimental observations were undertaken primarily with the hope that they might lead to practical suggestions for the routine treatment of the disease. The cases were divided into three groups, to one of which was administered allantoin, a substance found in rice polishings; the second group was treated with the hydrolysed extract of the polishings; and to the third the unhydrolysed extract was given. It may be mentioned that some of the patients were suffering from chronic forms of the malady, always the most obstinate in responding to the action of remedies. The results may be briefly summarised as follows. Allantoin was found to have a beneficial effect in certain cases, though this probably never amounted to a complete cure, so that before assessing its true value further observations are required. The hydrolysed extract benefited all types of beri-beri, but for various reasons it should only be employed in patients who can be kept under the direct supervision of medical men or trained nurses. The unhydrolysed extract appeared to be a safe and valuable remedy for infantile beri-beri, but was found to be comparatively of little use in the chronic cases of adults. The vitamine of rice polishings possesses specific curative properties against beri-beri far beyond those of any other known substance, but unfortunately its cost is prohibitive to the poorer classes of the Manila population, who are the chief sufferers from the malady and who stand most in need of the remedy. In conclusion Dr. Williams and

[1] Section B, Tropical Medicine, vol. x., No. 2.

Dr. Saleeby point out that their observations have a distinct bearing upon the etiology of beri-beri, and are in accord with the broad proposition that this disease results primarily from a poor dietary, one that is deficient, more particularly, in specific substances of the nature of the vitamine described by Casimir Funk. The fact that all types of beri-beri respond in greater or less degree to the same treatment would seem to indicate that they are in reality one and the same disease.

THE DRUG TARIFF UNDER THE NATIONAL INSURANCE ACT.

IN our last issue we published a résumé of the report of the Departmental Committee on the Drug Tariff under the National Insurance Act, from which it will have been seen that there is some prospect of an early revision of the payments to be made to chemists. In the early days, when the subject was first under discussion, there appeared to be considerable satisfaction with the plan by which doctors were to prescribe and chemists to dispense. This satisfaction has shown signs of waning with further experience. There have been many indications that the dispensing chemists think they have been induced to make a hard bargain, and they have frequently charged members of the medical profession with wilfully prescribing expensive drugs. In all probability this accusation could rarely be substantiated; but even when the prescriptions have been kept within the legitimate bounds of routine practice adopted in out-patient departments of hospitals, there has been some hardship during the past year owing to the great increase in the cost price of many drugs. In addition it must be remembered that the difficulties of work have been greater owing to the number of assistants who have entered some branch of the army. This reduction of establishment might have been accompanied by a proportionate reduction of working expenses, but, as in every other branch of work, we believe that assistants, knowing they are badly wanted, demand higher wages. It may be assumed, probably, that payments, which were perhaps barely adequate before the war, leave no margin of profit under present conditions. So far, therefore, there would appear to be some justification for reopening the whole subject of the payment to be made to the chemists under the Insurance Act. Before yielding to such charitable impulses, with regard to one side of the question, the rights of the panel doctors must be considered. Sir Robert Morant, in a letter dated August 23rd, 1915, has indicated that the Commissioners, in the present exceptional circumstances, when so many members of the profession are inaccessible, would be most reluctant to make any substantial modifications of the terms of service of medical practitioners under the Insurance Act unless they could feel assured that such modifications were desirable in the view of all concerned. The plain fact appears to be that the amount available for medical benefit is a fixed sum, war or no war, and that if chemists are to receive something more than hitherto, then doctors must receive less. With every sympathy with the difficulties of the chemists, we fear that a similar account of falling income and increased expenses might be heard from panel doctors, and as so many are at present inaccessible, to repeat Sir Robert Morant's term, we cannot but think that this is a most inopportune moment for any great revision of the conditions of payment. Even the report of the committee, to which we referred last week, fails to give satisfaction to the pharmaceutical members. The *Pharmaceutical Journal* states that the three members specifically dissent from the view taken by the majority of their colleagues on the question of an adequate establishment charge, while two of the members dissociate themselves from other points of detail. With such divergence of opinion from those who have had full opportunity of investigation, it is to be hoped that further discussion of the matter may be shelved until after the war.

EPIDIDYMOTOMY FOR ACUTE EPIDIDYMITIS.

Dr. A. H. Crosbie and Dr. A. Riley have called attention in the *Boston Medical and Surgical Journal* to the value of epididymotomy in acute epididymitis. The operation appears to have been first practised by Pirogoff in 1852, and in this country by the late Mr. Henry Smith in 1864. But it was subsequently neglected until it was revived by an American surgeon, F. P. Hagner, in 1906. Up to a year ago Dr. Crosbie and Dr. Riley used to treat cases of gonorrhœal epididymitis at the Boston Dispensary by the usual method of local applications, strapping, and rest in bed. Finding this treatment far from satisfactory they began to perform epididymotomy in the very acute cases. The results were so gratifying that now they operate even in the milder cases. At first they operated under ether, but they found that local anæsthesia is quite satisfactory and enables the operation to be performed as an out-patient procedure. They use from 20 to 30 c.c. of a 1 per cent. solution of novocaine to which has been added 3 to 6 drops of adrenal solution 1 in 1000. The best syringe is a 10 c.c. glass one with a 2-inch needle. The first step is to infiltrate the cord, which is done by grasping it where it emerges from the external ring between the left thumb and forefinger. The needle is inserted into the cord, and from 5 to 10 c.c. of solution are injected in all directions. It is well before removing the needle to point upwards and inwards and inject a little solution into the inguinal canal, so as to block completely all the nerves to the cord. The needle is then pushed downwards through the same point of entry along the cord to the region of the globus major and a little more is injected. The scrotum is then injected on the side of operation all the way to the perineum in the line of junction with the thigh. Finally, a little novocain is injected along the line of incision. In order to get perfect anæsthesia it is well to wait 10 or 15 minutes. The incision is made laterally so that the tunica vaginalis is opened near the epididymis. In very acute cases there is always considerable hydrocele fluid, so that it is easy to cut through the tunica vaginalis, but after some days the fluid disappears and the tunica becomes adherent, so that care has to be taken not to cut the testicle. The fluid may be clear and straw-coloured or turbid. Adhesions are freed with the blunt end of the knife or with a scissors and the testicle is delivered through the incision. The inflammation is usually most severe at the globus minor. Where the inflammation is worst the epididymis is hard and indurated. Occasionally minute abscesses can be seen. Multiple punctures are made deeply in the indurated area with a tenotome, whether there is visible pus or

not. Frequently a drop of thick pus wells up, and smears from this nearly always show gonococci. If an abscess is found the opening is enlarged a little. It is well to wash the testicle and epididymis with warm saline solution to remove the pus and blood clot. A drain of gauze or rubber is placed lengthwise along the epididymis and brought out at the lower end of the incision. The testicle is then pushed back and the wound closed loosely with silkworm-gut passing through all layers. This allows any hydrocele fluid that forms to work out. The patient is allowed to go home, take a cathartic, and, if possible, to rest in bed for a couple of days. The wick is removed on the third or fourth day and the stitches in about a week. Even on the following day there is a great change: the sallow septic look has gone and the relief from pain is almost miraculous. The rationale of the operation is that in acute epididymitis there is pus under pressure without adequate means of drainage. The course of both the epididymitis and the urethritis is shortened, and in cases of double epididymitis sterility is less likely to follow.

RECURRENCE OF TORSION OF THE SMALL INTESTINE AFTER EXTENSIVE RESECTION.

Dr. W. L. Kirkwood has reported in the *Medical Journal of Australia* of July 17th a remarkable case of torsion of the small intestine in which a length of 8 feet was excised and the torsion recurred. A woman, aged 60 years, long a sufferer from dyspepsia and constipation, was seized with abdominal pain about 1 P.M. on August 2nd, 1913. The pain continued in varying intensity, and she vomited twice. Dr. Kirkwood was called to her at 2 A.M., when she complained of griping pain, chiefly in the upper abdomen. There was no local tenderness and little general tenderness. An enema produced a large evacuation. At 7 A.M. the pain continued, vomiting had again occurred, the abdomen was distended, and there was dullness in the flanks. Laparatomy was performed 23 hours after the onset of symptoms, when the abdomen had become enormously distended and the pulse was imperceptible. While the anæsthetic was administered saline solution was infused under the breasts. A right rectus incision was made opposite the umbilicus. A large quantity of fluid, at first slightly turbid, later blood-stained, escaped. Torsion of the mesentery from right to left (clockwise), causing strangulation of the vessels, was found. Many feet of bowel were distended, œdematous, without gloss, and of a deep chocolate colour. The mesentery was similarly discoloured, swollen, and pulseless. The twist was unwound but pulsation did not return in the mesenteric vessels. The limits of the affected intestine were sharply defined by a slight constriction of the lumen. The bowel was divided between clamps at a distance of 6 inches on each side from the affected area, and the mesentery excised along a line close to the pulseless discoloured area. End-to-end anastomosis of the intestine was performed and the abdominal wound closed. The removed portion of bowel measured 8 feet. It was soon evident that the patient had been relieved. In about an hour a flicker could be felt at the wrist, and uneventful recovery ensued. Troublesome looseness of the bowels followed, but was controlled by bismuth and opium. About a month after the patient returned home she began to complain of griping, noisy abdominal pains, and described the sensation as an effort of the bowels to overcome an obstruction. The diarrhœa and pains subsided. On May 24th, 1914, she complained of pains similar in character to those of her former illness. There was again no local tenderness, but obviously great abdominal discomfort. Dr. Kirkwood felt certain that the illness was the same as before, and had her removed to hospital. He performed laparotomy within four hours of the onset of symptoms. The abdomen was again full of fluid, and coils of distended discoloured bowel again presented and had undergone clockwise torsion. There were bands of adhesion between the old line of intestinal and mesenteric suture and the omentum, but these did not seem to have any relation to the torsion. The intestine at the line of suture was very stenosed, and above this dilated and hypertrophied. The circulation of the unwound coils and mesentery was found to be good and the bowel viable. It was decided not to deal with the stenosis. Recovery was uninterrupted, the bowels have since acted regularly, and the pains have not recurred. The breaking down of the adhesions seemed to have relieved a tendency to kinking at the site of the stenosis, as the patient felt much more comfortable than in the period following the first operation. In his "Problem and Practice in Abdominal Surgery" Mr. Maylard has stated: "As we exceed the six-foot limit with regard to intestinal resection we begin to deprive the patient of parts requisite for the absorption of nourishment." He also refers to the danger of lienteric diarrhœa. However, much greater lengths of bowel have been removed with success. Sir Berkeley Moynihan regards the length of bowel left as more important than the length removed and calls attention to the great variation in the length of the intestine.

THE INCIDENT OF THE "NOORDZEE."

THE Dutch lugger *Noordzee*, towed into Grimsby recently by a Norwegian steamer after having been found drifting in the North Sea, would have provided a sensational trial in our courts if it had not been decided that Dutch sailors accused of crimes committed on board a Dutch vessel on the high seas must go before a Dutch tribunal. The story, part of which is suggested rather than affirmed, because the surviving members of the crew were not in a condition to give a rational account of themselves, is as follows. The Norwegian steamer found the lugger drifting and not under control, with nearly all her rigging and gear gone. On board were eight men and two boys in a state of insanity, the suggestion being that the boys were demented with horror at what they had seen. In the forecastle were signs of a bloody crime having been committed, and three members of the crew who should have been on board were missing. It is again a matter of suggestion rather than a narrative established by evidence that the crew after indulging in a drinking bout became frenzied, and that a religious element entered into their madness, ascribed by some to their coming from a port where religious fervour is prevalent among the inhabitants. The result was a delusion affecting all the men that the devil was among them. It has not been gathered from what they said whether they murdered three of their own number as a sacrifice,

or whether they killed them because they believed them to be possessed of the devil. Apparently, however, they considered that the devil was in the ship itself, and with the object of getting rid of him they cut down and threw overboard the rigging and spars and everything else that they could thus get rid of, including the donkey-engine, while the wheel bore signs of having been hacked with a chopper with the same object. Presumably an investigation will take place in the Dutch courts, and as considerable interest has been excited in the Humber and surrounding district the result of this extraordinary tragedy of the sea will be known here eventually. The psychological interest of the story is very great.

BOVINE ACTINOMYCOSIS.

NUMEROUS imported ox tongues have been found to be affected with actinomycosis, and the pathological laboratory of the Local Government Board have been conducting anatomical and microscopical research into the characters of the lesions in the lymphatic glands of the lingual region.[1] The material was furnished by 46 tongues from Argentina, 2 from North America, and 2 from Siberia, whilst 44 fresh specimens from animals slaughtered in this country were examined. The lesions in the 50 imported specimens have been compared with those in the 44 derived from this country. Numerous attempts to obtain from the imported tongues the causal organism in culture from the lymphatic gland lesions were unsuccessful. Inoculations with emulsion of diseased tissue in experimental animals did not produce actinomycotic lesions. In one case in a calf the disease seems to have been communicated by subcutaneous inoculation of cultures obtained from the home material. All the imported specimens contained specific granules in the lesions which would not stain by the Gram method, and in 23 of the British cases this fact was also observed. In four of the British cases specific granules staining by Gram were met with, and the histological features and anatomical distribution of the disease corresponded with that described by Lignières and Spitz in 1902 in Argentina cattle. The bacillus obtained had the characters of the actinobacillus. The investigator concludes that actinobacillosis is widespread in the world and forms a considerable proportion of the cases of disease in oxen known as actinomycosis. The investigations were curtailed owing to the war, and the biological properties of the organisms have yet to be studied. The transmission of actinobacillosis from animals to man has not yet been established, and there are no recorded cases of suspected transmission, although there is some evidence to show that the disease may be transferred to cattle, cats, and dogs by inoculation.

THE death is announced of Sir James Moody, the well-known superintendent of the London County Asylum, Cane Hill, to which position he was appointed over 30 years ago.

FOUR lectures on Typhus Fever and Cerebro-spinal Meningitis will be delivered on Tuesday, Wednesday, Thursday, and Friday, Oct. 5th, 6th, 7th, and 8th, by Dr. F. M. Sandwith, Gresham Professor of Physic. The lectures will be given at Gresham College, Basinghall-street, London, E.C., at 6 P.M., and are free to the public.

[1] A Preliminary Report on the Pathology of Bovine Actinomycosis. By Frederick Griffith, M.B Vict. London: Wyman and Sons, Limited. Price 2d.

A NOTE ON THE TESTING OF DISINFECTANTS.

BY SAMUEL RIDEAL (LONDON) AND J. T. AINSLIE WALKER (NEW YORK).

IN view of the fact that the International Committee on the Standardisation of Disinfectants, appointed at the last meeting of the International Congress of Applied Chemistry, cannot meet this year owing to the war, and that this may entail a further delay of three years, we desire to call attention to one or two points which have arisen since the publication of our paper on Approved Technique of the Rideal-Walker Test,[1] and to submit the following suggestions as addenda to the paper referred to.

First, in view of the difficulty experienced by some workers not familiar with the technique of the clinical laboratory, we suggest that a burette, such as that described by Hermann W. Mahr, of the Board of Estimate and Appointment, New York,[2] can be adopted in place of the dropping pipette. On the other hand, we know many workers who have a decided preference for the dropping pipette originally used by ourselves and who do not see the necessity for changing this detail of the technique.

The second suggestion deals with the well-known variations in resistance offered by the standard broth culture of B. typhosus. To obtain the desired result in the phenol column—life in 2½ minutes and in 5 minutes and no life thereafter—dilutions ranging anywhere between 1 in 80 and 1 in 140 may be required. We feel that this range is too great, and suggest, therefore, that the culture be rejected if it calls for a phenol dilution higher than 1 in 110 or lower than 1 in 90. Where the culture becomes so attenuated as to call for dilutions higher than 1 in 110 it can be strengthened by passage through any suitable animal. By restricting this range in dilution, the only rational objection to the Rideal-Walker test is at once removed.

A new difficulty has been introduced through the war; it is impossible now to obtain supplies of Witte's standard peptone. We understand this matter has been taken up by an American committee, representing four prominent laboratories, with Dr. Conn as umpire, and that this committee is about to report in favour of a brand which is said to be equal to Witte's in every respect. In the meantime it would be interesting to have the views of other workers. We therefore invite discussion on this point.

[1] American Journal of Public Health, vol. iii., No. 6.
[2] New York Medical Journal, March 7th, 1914.

A TUBERCULOSIS SCHEME FOR PLYMOUTH.—At the last meeting of the Plymouth borough council it was decided by 42 votes against 2 immediately to proceed with a tuberculosis scheme for Plymouth, the annual expenditure of which is estimated at £4848. The scheme includes a dispensary and the provision of beds in existing institutions.

MIDDLESEX HOSPITAL.—The opening of the Medical School will take place on Friday, Oct. 1st, at 3 P.M., when the prizes will be distributed by Sir James Kingston Fowler. There will be no address, and owing to the war no formal invitations will be issued, but all who are interested in the hospital and its medical school are cordially invited to be present and to bring their friends. The annual dinner will not be held.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE AIDE ET PROTECTION AUX MÉDECINS ET PHARMACIENS BELGES SINISTRÉS.

AT the beginning of September further official reports of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés reached us through the kind offices of Professor Jacobs. Previous documents have covered the months of April, May, and June. The latest reports dealt with the meetings of July 15th, 22nd, and 29th.

The financial report showed the receipt during the week ending July 15th of 20,000 francs, an expenditure of 3700 francs in grants of 600 and 700 francs, and a sum in hand of 41,000 francs, the reserve having much increased.

M. Laruelle brought forward the sad case of Madame Van K——, the widow with eight children of a doctor who died at Louvain in January. His house and all his furniture were destroyed in the burning of the city. A grant of 700 francs was made, and it was decided to recommend Madame Van K—— for a monthly allowance.

The financial report for the week ending July 22nd showed very small receipts and expenditure, leaving the money in hand at practically the same total. Twelve more cases of the drugs sent to Belgium by the British Fund on its inauguration were announced as having been distributed to 12 medical men, three other cases being sent to another practitioner.

From Liége, Verriers, and Brussels complaints were received from certain pharmaciens who did not understand the scope of the committee, and steps were taken to explain the matter to the National Committee. At this meeting it was decided, when sending to the National Committee an account of the activities of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés, to ask for further subsidies. M. Coppez explained the position of the wives of doctors and pharmacists with the Belgian army at the front. By a special arrangement the wives of those actually in the army before the war receive a monthly sum not exceeding 175 francs. The wives of those who joined after August, 1914, are not so provided for.

M. Breugelmans made a report upon the mensualities granted to medical men or their families and dependents. His notes ran as follows:—

Mr. V. M——, of T——, received an allocation of 700 francs on July 5th. He is living at M—— with his wife and one of his sons, and they are supported by a friend. Three other sons have taken refuge with their grandparents at Gramont. Another son is a prisoner in Germany. Desirous of earning a living he has obtained a money loan from a sister-in-law and has begun to build an annexe at the rear of his former premises at T—— in which to house his family and to work as a chemist. The moment he begins to earn something by the exercise of his profession he will be able to do without help, but until then he has to live and provide a living for six persons. Monthly allowances of 600 francs for July, August, and September were granted.

J. F——, of D——. This sinistré had his house destroyed by the bombardment of the town, and a grant was made to him in April last. Since then he has been forced to leave the scene of the disaster to get relief from nervous troubles from which he has suffered as a result of shock. He took refuge at M——, and is recovering, but has not as yet restarted his chemist's shop at D——. When war broke out he had made purchases, to the extent of all his savings, of stock for manufacturing infusion of lime flowers. This remains on his hands, stale and unsaleable, while his house and all its contents have been destroyed by fire. So far he has been able to provide for his wife, his three daughters, and the child of a step-son, but his situation is very precarious and deserves our intervention. The committee has granted him the sum of 200 francs per person for the months of July, August, and September.

Madame G——, of A——, widow of a pharmacien. Her husband and her eldest son, a student in pharmacy, were killed and the shop was pillaged in August, 1914. The committee allocated her the sum of 700 francs in April. Since then Madame G—— has been obliged to employ a manager in her shop. Her profits being practically nil, this has meant an added burden, and she sought help from the committee, which has allocated her two sums of 200 francs each for the months of August and September.

Mademoiselle G——, of F——, the daughter of a pharmacien and the only survivor of her family, is in a lunatic asylum in L——. She has only distant relatives left, one of whom, Dr. R——, of B——, undertakes a quarterly payment of 70 francs in order that the patient may enjoy the *régime* of a paying inmate, the main sum for the support being paid by the Intercommunal Fund. The house and shop at F—— have been let for 450 francs a year. The contents of the shop did not find a buyer and are now of no commercial value. There remain debts owing to wholesale houses amounting to 1500 francs. The committee is allowing for Mlle. G——'s support a sum amounting to what is paid to the institute where she is confined and in payment of small additional comforts for one year.

J. G. H. M——, of V——. This pharmacist had only lived a short time at V—— with his mother and sister. His house and shop were completely destroyed by fire during the destruction of the town. He took refuge at M——, where his situation is precarious. The committee granted him a donation of 700 francs.

A debate on the price of drugs in Belgium showed the difficulties caused in arriving at the proper rates of sale because of the varying prices in Germany and England, and the small market.

The financial position announced at the sitting of July 29th was almost the same. Very few subscriptions were received and 2900 francs were granted to six pensioners in sums varying from 400 to 700 francs. The amount remaining in hand was 39,000 francs.

M. Laruelle read a report of his investigations into the cases of various doctors, which showed that the distribution of the money was very carefully considered.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:—

	£	s.	d.
S. Essex Division, B.M.A. (per Dr. J. B. Maxwell, Joint Hon. Sec.)—			
Dr. Perkins	0	10	6
Dr. Floyd	1	1	0
Dr. Walker	0	10	6
Dr. Hinks	0	10	6
Dr. Watson and Dr. Wacher	0	10	0
Dr. Prentis	0	5	0
Dr. Adams	0	5	0
Dr. Brice Poole	0	10	6
Dr. Forsyth and Dr. Norman	1	1	0
Dr. Wragg	0	10	6
Dr. Lloyd	0	10	6
Dr. Stovin	0	10	6
Dr. Killard-Leavey ...	0	10	6
Dr. G. D. H. Carpenter (sixth donation, total £6)	1	0	0
South Australian Belgian Doctors' Relief Fund (per the Agent-General) (fourth donation, total £527)	27	0	0
Mr. Alfred Freer	0	5	0
Mr. E. Nash	1	1	0
Mr. G. H. Morgan	1	1	0
Messrs. Francis and Co.	1	1	0
Mr. J. Fawcett	0	12	6

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh University: Preliminary Examinations.

THE war, as was anticipated, made a marked impression on the number of candidates sitting for the Preliminary Examination at Edinburgh University, which commenced in all the four centres on Sept. 17th. In arts and science, the number of candidates was in each case over 100 less than the number of a year ago at this time. In medicine, however, the numbers show a very small increase, and the total of women candidates does not account for this. The figures for this year are 125 in medicine as contrasted with 123 a year ago. As last year, there will be at the end of the month a special Final Examination in medicine.

Edinburgh Insurance Committee.

In the reports by the subcommittees to the Insurance Committee for the burgh of Edinburgh, it is stated by the Sanatorium Benefit Subcommittee that the number of insured persons in the City Hospital Sanatorium under arrangements of the committee was—males 10, females 4. There was submitted the following statement of work done among insured persons at the Royal Victoria Dispensary during the months of July and August: total number of new patients, in July, 31; August, 26; total number of attendances at dispensary, 204 and 205; number of patients visited, 190 and 199; number of visits paid on above patients, 320 and 360. The committee considered under remit to them the report of Dr. J. Guy, tuberculosis officer, on the work connected with sanatorium benefit during the year 1914. Regarding the reference in the report to the paucity of the numbers who apply for the benefit in the early or more curable stage, it was pointed out that the average person suffering from tuberculosis will continue working until quite incapacitated. Only when the person is compelled by his condition to take medical advice does the case come under the notice of the doctor and the public health authority. A question was asked as to whether the Dean of Guild Court, before approving of plans for new dwelling houses, was satisfied that there were thorough ventilation and no dark bed closets. It was stated that the Dean of Guild Court had no power to make thorough ventilation compulsory. "Box rooms"—i.e., small rooms without windows—presumably intended for storage of lumber were apparently allowed, and it was found that these were frequently used as bedrooms. The proper ventilation of workshops was also mentioned as having a distinct bearing on the health of the workers. While there were one or two notable exceptions where windows were kept open all day long, workshops were for the most part found to be badly ventilated. There was submitted by the Medical Benefit Subcommittee of the Edinburgh Burgh Insurance Committee a copy of a memorandum issued by the Insurance Commission urging upon insurance practitioners the absolute necessity of the most rigid economy in the use of drugs, consistent with efficiency. It was pointed out that the price of drugs most frequently in use had enormously increased, and economy was urged not merely to lighten the burden on the drug fund, but in order to conserve the national stock of drugs.

Highlands and Islands Medical Service Board.

A special meeting of the Inverness Division of the British Medical Association was held in Inverness on Sept. 11th to confer with Dr. J. S. Robertson, member of the Highlands and Islands Medical Service Board (Edinburgh), and in regard to the general policy and proposals of the Board so far as medical practitioners were concerned. The statement put forward by Dr. Robertson was very favourably received by the members present, and the meeting unanimously agreed to fill the preliminary form of inquiry submitted to them by the Board as a basis for further individual negotiation.

Nairn Town and County Hospital.

The annual meeting of the directors of the Nairn Town and County Hospital was held recently. The medical report for the year ending May 15th, 1915, was submitted. This showed that 106 patients were admitted to the hospital during the year; 26 outdoor patients attended, chiefly for dressings. Of these, 82 cases were cured, 19 improved, and 4 died. The income for the year amounted to £580 2*s.* 5*d.* and the expenditure to £693 9*s.* 8*d.*

Royal Dundee Institution for the Blind.

The directors of the Dundee Institution for the Blind having solicited permission to use the word "Royal" in the title of the institution, His Majesty the King has been graciously pleased to accede to the request, and has commanded that the institution be designated "The Royal Dundee Institution for the Blind."

Death of Dr. John Gregory, of Aberdeen.

The death of Dr. John Gregory occurred at Aberdeen on Sept. 8th. He was born in Dornoch, but went to Aberdeen at an early age, his father being the last parochial schoolmaster of Oldmachar. Dr. Gregory entered the University of Aberdeen from his father's school, and graduated in medicine in 1883 after a successful university career. His wife died some months ago, and a son survives, who is at present in Canada.

Sept. 21st.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Waste of Life from Plague.

IN these days education and sanitation are the watchwords of the influential classes in India, or rather they were until the fascinating game of creating paper constitutions for the country after the war became popular. Urban sanitation and rural sanitation bulk largely in reports of congresses and conferences, and if a new and sanitary earth could be created by discussion India would be the healthiest country in the world. Unfortunately much hard and practical work is needed as well as speech-making, and that is where the hitch comes. Expensive schemes of sanitation are all very well, but there is a good deal of solid spade-work that might be done without much cost if the people were only willing to do it. The most important sanitary work that can be done in the Punjab during the next decade is one that would cost little, and that must be done, if it is to be done at all, by non-official agency—namely, an earnest attempt to grapple with the recurring epidemics of plague. The remarkable report by Lieutenant-Colonel Lane, chief plague medical officer, is contained in the

annual sanitary report of the Punjab. It is one of the most important documents in recent official literature. In the 12 years from 1903 to 1914 there have been no fewer than 2,357,931 deaths from plague in the Punjab. It is now eanrly 20 years since plague made its first appearance in epidemic form in Bombay city, and quickly spread through the country. We know much more abont the disease now than we did then; but we are little nearer to stamping it out, because, as the report suggests, no official agency can possibly tackle the problem, and the people either do not know or will not take the very simple measures necessary to protect themselves. The special plague medical staff does what it can, but what can 50 or 500 men do to combat a disease that sweeps through the whole province, while the people are so apathetic that they will not be bothered with antiplague measures? The matter is put very simply when it is said that the people do not want to die from plague, and when an epidemic has broken out they are, as a rule, ready to accept assistance and to coöperate with the medical staff. But it is then generally too late, and until plague is actually present they will not take the necessary measures. Educate, educate, educate, is the cry of the plague officer, and if the same zeal was devoted to this task as is devoted to the discussion of visionary political projects the task could be accomplished and the disease wiped out. Colonel Lane's plague gospel has been preached before, but never, I imagine, more simply and effectively. Here it is in a sentence: "If each householder kept his house free from rats there would be no more plague." The chief plague officer estimates that there are about 15,000,000 rat-holes in the houses of the 21 infected districts of the Punjab. There is on the average one rat-hole for each inhabitant, and if the people would stop these rat-holes there would be no more plague. It is quite impossible for the 50 men of the plague staff to prevent rats burrowing under the walls and fleas breeding on the floors of about 4 million houses, but the householders could easily do it if each one did his bit. It is pitiful to see thousands die weekly through indifference and fatalism from a disease which the victims themselves could prevent. Efforts at educating the people in plague prevention have been confined to the men, but the men have their crops and their cattle to look after, while plague is essentially a disease of the home. If the women of the Punjab can be got to realise that rat-holes and unswept floors endanger the lives of their husbands and children, not to mention their own, we shall have made a great step towards banishing plague from the province. Inoculation gives almost certain immunity for one season, and the people are invited to do what the plague staff do themselves—get inoculated against plague when there is danger of plague infection. This purely voluntary and limited inoculation is becoming very popular. Further, rat destruction by baiting, smoking, and trapping is carried out in infected villages, and some uninfected municipalities are wise enough to inaugurate anti-rat campaigns as a means of prevention. Colonel Lane's report lays stress on the need for the utmost energy at the beginning of each season. "It is not an insurmountable task to deal with a couple of hundred centres of smouldering infection. It is an impossible task to deal with several thousand centres of fulminating infection." Special efforts are to be made this year "to break down the bridges of infection, so to speak, which connect this plague season with the next." Rawalpindi city has a particularly bad record as a centre of infection that disseminates plague through a considerable portion of the province, and a pointed appeal is made to the Rawalpindi municipality to do their duty by making strenuous efforts to rid their city of plague during the hot weather. We have not heard whether the municipal commissioners have taken the appeal to heart, but a heavy responsibility lies upon them. Much may be done by energy in dealing with the main centres of infection, but the education of women in domestic hygiene gives a chance for a crusade that might be of illimitable value.

Vaccination in the Punjab.

The vaccination returns of the Punjab for 1914–1915 reflect the influence of the absence of epidemics during that period. So long as small-pox keeps away, the people show a disinclination to be revaccinated. Thus, though the number of primary vaccinations remained practically stationary there was a substantial decrease in the number of revaccinations. Women, it appears, are more prejudiced than men on the subject, as is shown by the returns, the percentage of males and females revaccinated during the year being 66·55 and 33·45 respectively. The rate of successful operations continued high, particularly among infants. Special attention was devoted by the Sanitary Commissioner to the question of infant vaccination, with the result that operations on children under 1 year of age rose from 5885 to 8489. The total number of operations of all kinds, primary as well as secondary, declined from 216,286 to 165,378. In order to increase the protection from small-pox of infants in the towns, the Lieutenant-Governor is anxious to have the Vaccination Act extended to all municipal towns. During the year Alipur, Sialkot, and Palwal adopted the Act, but there are still many municipalities where it is not in force.

Five at a Birth.

The *Bombay Chronicle* publishes a letter from Bhor State reporting that a Mahratta lady, aged 33, had given birth to quintuplets, two males and three females. All were born alive, but it was not expected they would live long "owing to the want of nursing." The mother of these five children gave birth to three children last year; all died within three months.

An Indian Medical Service Commission.

Surgeon-General Sir Pardey Lukis, Director-General of the Indian Medical Service, has selected Dr. Hem Chandra Roy Chaudhuri, L.M.S., to be commissioned as a temporary lieutenant. This is the first occasion on which a man without European qualifications has been given a commission in the Indian Medical Service.

St. John Ambulance Red Cross War Fund.

The total amount received up to date by the St. John Ambulance Association for its Red Cross War Fund is Rs.4,62,000.

Sept. 1st.

CENTENARIANS.—Mrs. Allen, of Walcot, Bath, celebrated the 101st anniversary of her birthday on Sept. 14th. Mrs. Allen was born in Wiltshire, but has resided in Bath for the past 28 years.—Miss Fanny Cresswell Paris, daughter of Dr. John Ayrton Paris, President of the Royal College of Physicians of London in 1844, has just celebrated the 101st anniversary of her birthday at her residence in Yarmouth, Isle of Wight.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Birmingham.—Dr. J. Robertson's annual report for the year 1914 contains, as usual, much interesting material. He explains in the preface that for obvious reasons this report has been curtailed when compared with previous reports, as no less than 16 medical officers employed in various branches of the public health department of the city and 50 inspectors and others have gone on military service. The prevention of infantile mortality occupied considerable attention in Birmingham, as elsewhere, during 1914. As illustrating the fact, which is now generally recognised, that an excessive infantile mortality is preventable and quite unnecessary, Dr. Robertson instances a certain area of the city known as Balsall Heath, which has a population of over 40,000 persons, and is a typical example of a district occupied mainly by careful artisans, and states that if the infantile mortality in this district be taken as a standard, it is found that other large areas in the city have a mortality exceeding this standard by 100 per cent. and more. Ignorance, thriftlessness, and carelessness are the main causes in operation producing this excessive mortality. A large percentage of the girls in Birmingham are employed in low-grade factory labour and have little opportunity of gaining experience in the things which go to make a healthy home. Some, of course, of the women factory workers do of their own accord get adequate experience, others acquire it as a result of imitation or by mistakes and disasters, while there are many others who never seem to be able to get the experience at all. Dr. Robertson suggests as a remedy for these evils that steps should be taken to ensure that factory girls between the ages of 14 and 20 should have adequate opportunity of keeping themselves informed as to the ordinary principles of healthy living. The summer of 1914 was a long one, with considerable bright sunshine, but not a high temperature. It was, indeed, one in which high infantile mortality was to be looked for, but the facts recorded in the section of the report dealing with this subject may be regarded as indicating a successful result of the efforts that have so far been made to influence the mortality.

During 1914 2839 infants under one year died—1605 males and 1234 females. This gives a mortality rate per 1000 infants born during the year of 122. Among the many methods employed to lessen the infantile mortality in Birmingham one appears to us of special interest and may briefly be alluded to. Three small voluntary societies have undertaken to provide a substantial and suitable dinner for expectant and nursing mothers who were found by the health visitors or other ladies to be insufficiently fed during the winter months. The work was commenced by each society with a good deal of hesitation as to whether such a charity was really on sound lines, and as to whether the feeding of these women was not doing real harm in taking away the responsibility from the woman's husband of providing for her. All of those who have been in intimate contact with the women themselves and their home conditions, and have been able to see the effect of the feeding on both mother and child, have no doubt whatever about the value of the work as seen in the physical improvement of the mother and child, and in return of self-respect shown by most of them as a result of contact with educated workers. Two general types of case form the majority of those relieved: (*a*) women with sick husbands who struggle to keep away from parish relief, and (*b*) women with idle, drunken, or work-shy husbands. The size of the family seems to influence greatly the necessity for feeding, for it has been found almost universally that when food is scarce a mother gives it to her husband because he has to work, and to her children, and scrimps herself to such an extent that one can notice the effect of the underfeeding, and more especially the good effect on the starving mother of the dinners provided. Many women were fed because they were underfed as a direct result of having vicious or drunken husbands, and most of these were quite good mothers—women whose lot was a particularly unfortunate one, because with their large families it was quite impossible for them to do anything for themselves. During the winter 1914–15 the number of meals provided for expectant and nursing mothers were as follows: At centre A, 3227; at centre B, 3388; and at centre C, 1800. Each meal consisted of a dinner of two courses, the cost per head for food only being from 2¼*d.* to 3¼*d.* per meal at the centres respectively. In most instances the mothers paid 1*d.* each for the dinner. This charge, however, had to be remitted where the poverty was great. The duration of the feeding varied from a few days to six months. A pleasing feature was that in most instances the women immediately ceased attending whenever they were able to provide for themselves. A good many came and paid up arrears of pennies when they had the money, and were profuse in their thanks for what had been done for them. Dr. Robertson concludes the section of his report devoted to the discussion of infantile mortality by the following statement: "Government grants in aid of work having for its objects the improvement in the health of infants and children, and for preventing mortality, have been given to the city council and a number of voluntary societies during the year 1914, and these have been a great stimulus to getting more and better work done. Grants have been made in Birmingham for certain of this work by the Local Government Board through or to the public health committee, while in other cases for precisely the same type of work (work which has exactly the same object in view) grants have been made direct to local associations by the Board of Education. The result may be very considerable confusion and overlapping. It would appear that all such grants should come through one local channel, so that expenditure of public money may in some way be controlled with the view to prevent overlapping."

An interesting feature of the report is a summary which it contains of a report by Dr. W. H. Davison, assistant medical officer of health, on an investigation into the ventilation of artisan dwellings in Birmingham, with special reference to that of back-to-back houses as compared with houses having through ventilation. The method employed in these experiments was to generate a known quantity of CO_2 by means of specially prepared candles (weighed before and after the experiment, and giving off a known amount of CO_2) placed at different points of the room and allowed to burn for a known time. A sample of air was collected and the amount of CO_2 was determined by Pettenkofer's method. Having calculated the amount of CO_2 delivered into a room in a given time, the amount of CO_2 present at the end of that time was ascertained. It was then possible to determine the rate at which the air in the room was being changed by ventilation. The conclusions come to by Dr. Davison are as follows: 1. Through ventilation can be obtained in every room of a back-to-back house which is provided with a fireplace as well as a window, and the ventilation under ordinary conditions compares favourably with that found in a similar through house. 2. The rate of exchange of air in rooms of back-to-back houses which have a fireplace approaches the limit that can be borne with comfort in cold weather. Any attempt to increase the ventilation by means of additional openings would give rise to draughts, and probably lead to the permanent closure of these openings or the chimney flue. 3. The efficiency with which a room is flushed with fresh air by opening the window is not so great in a back-to-back house as a through house, and this is more marked in hot, calm weather. This tends to make the back-to-back house uncomfortably close during the summer months, particularly the house with a south or west aspect. 4. In back-to-back houses containing three rooms, one on each floor, the ventilation is not satisfactory when the attic is unprovided with a fireplace. Not only does the air in the attic contain a high percentage of moisture during occupation, but there is a tendency for this impure air to be drawn into the room below. 5. The proportion of back-to-back houses having only one bedroom provided with a fireplace is greatly in excess of through houses having the same arrangements for ventilation. 6. The existing means of ventilation in a large number of back-to-back houses and in a certain number of through houses could be much improved. It is very interesting to learn that the public health and housing committee of Birmingham have placed at the disposal of the members of the medical profession, free of charge, means for the diagnosis of syphilis by the Wassermann reaction. The medical men may either take the sample of blood themselves and forward it for examination, or, as

an alternative, the committee have arranged for the examination of any patient by a medical officer employed by the public health department at consulting-rooms that have been provided for the purpose where any patient sent by a medical man will be seen by appointment under the best possible conditions. Up to Dec. 31st, 1914, 39 cases were sent for examination, of which 29 were positive and 10 negative.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7454 births and 4785 deaths were registered during the week ended Saturday, Sept. 18th. The annual rate of mortality in these towns, which had been 12·3, 12·1, and 14·0 per 1000 in the three preceding weeks, fell in the week under notice to 13·8 per 1000 of their aggregate population estimated at 18,136,180 persons at the middle of last year. During the first eleven weeks of the current quarter the mean annual death-rate in these towns averaged 12·0 per 1000, and was equal to that recorded in London. The annual death-rate last week ranged from 5·8 in Southport, 5·9 in Tynemouth, 6·7 in Bournemouth, 6·8 in Darlington, and 8·0 in Tottenham, to 17·7 in Ipswich, 19·0 in Sheffield, 19·3 in Dewsbury, 20·3 in Barnsley, and 23·2 in Gateshead.

The 4785 deaths from all causes were 80 fewer than the number in the previous week, and included 802 which were referred to the principal epidemic diseases, against numbers steadily increasing from 346 to 833 in the seven preceding weeks. Of these 802 deaths, 638 resulted from infantile diarrhœal diseases, 55 from whooping-cough, 54 from diphtheria, 26 from measles, 15 from enteric fever, and 14 from scarlet fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·3, or 0·1 per 1000 less than in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had continuously increased from 67 to 664 in the 11 preceding weeks, fell to 638 last week, and included 171 in London, 36 each in Birmingham and Liverpool, 33 in Sheffield, 27 in Manchester, and 22 in Gateshead. The deaths attributed to whooping-cough, which had been 37, 50, and 44 in the three preceding weeks, rose to 55 last week; 17 deaths were registered in London, 7 in Sheffield, and 3 each in Edmonton, Birkenhead, and Liverpool. The fatal cases of diphtheria, which had been 47, 33, and 44 in the three preceding weeks, further rose to 54 last week, of which 17 occurred in London and 3 each in Liverpool and Sheffield. The deaths attributed to measles, which had been 66, 41, and 47 in the three preceding weeks, fell to 26, and included 4 in Lincoln and 3 in Leeds. The deaths referred to enteric fever, which had been 9, 6, and 17 in the three preceding weeks, slightly fell to 15, of which 3 were registered in London and 2 each in Salford and Bradford. The fatal cases of scarlet fever, which had been 26, 22, and 17 in the three preceding weeks, further fell to 14 last week, and included 4 in London and 3 in Manchester.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2360, 2365, and 2443 at the end of the three preceding weeks, further rose to 2590 on Saturday last; 429 new cases were admitted during the week, against 315, 365, and 385 in the three preceding weeks. These hospitals also contained on Saturday last 1243 cases of diphtheria, 58 of measles, 50 of enteric fever, and 11 of whooping-cough, but not one of small-pox. The 1276 deaths from all causes in London were 58 in excess of the number in the previous week, and corresponded to an annual death-rate of 14·7 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 99 to 124 in the four preceding weeks, further rose to 151 in the week under notice, and were 41 in excess of the number registered in the corresponding week of last year.

Of the 4785 deaths from all causes in the 96 towns, 213 resulted from different forms of violence and 366 were the subject of coroners' inquests, while 1411 occurred in public institutions. The causes of 36, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Sheffield, Leeds, Bristol, West Ham, Bradford, and in 70 other smaller towns. Of the 36 uncertified causes of death, 11 were registered in Birmingham, 4 in London, and 2 each in Liverpool, St. Helens, and South Shields.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 538 births and 390 deaths were registered during the week ended Saturday, Sept. 18th. The annual rate of mortality in these towns, which had increased from 13·6 to 16·7 per 1000 in the four preceding weeks, further rose to 16·8 per 1000 in the week under notice. During the first 11 weeks of the current quarter the mean annual death-rate in these towns averaged 14·4, against a corresponding rate of 12·0 per 1000 in the English towns. The annual death-rate last week was equal to 20·1 in Dublin (against 14·7 in London and 14·1 in Glasgow), 14·6 in Belfast, 22·4 in Cork, 13·9 in Londonderry, 10·8 in Limerick, and 9·5 in Waterford, while in the 21 smaller towns the mean rate was 14·9 per 1000.

The 390 deaths from all causes were 1 in excess of the number in the previous week, and included 57 which were referred to the principal epidemic diseases, against 59 and 39 in the two preceding weeks. Of these 57 deaths, 44 resulted from infantile diarrhœal diseases, 7 from whooping-cough, 4 from diphtheria, and 2 from enteric fever, but not one from measles, scarlet fever, or small-pox. The mean annual death-rate from these diseases was equal to 2·5, against a corresponding rate of 2·3 per 1000 in the English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 36, 41, and 30 in the three preceding weeks, rose to 44 last week, and included 25 in Dublin, 13 in Belfast, and 2 each in Cork and Londonderry. The deaths attributed to whooping-cough, which had been 5, 8, and 6 in the three preceding weeks, were 7 last week, of which 3 occurred in Londonderry and 2 in Sligo. The 4 fatal cases of diphtheria, comprising 3 in Dublin and 1 in Belfast, were 2 in excess of the average in the earlier weeks of the quarter. The 2 deaths from enteric fever were recorded in Galway and Newry.

The deaths referred to diseases of the respiratory system, which had been 34, 28, and 41 in the three preceding weeks, rose to 48 in the week under notice. Of the 390 deaths from all causes, 121, or 31 per cent., occurred in public institutions, and 2 resulted from violence. The causes of 13, or 3·3 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 0·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Staff Surgeons: H. D. Drennan to the *Leviathan*, additional; A. R. Thomas to the *Egmont*, for Malta Hospital; and C. Ross to the *Talbot*. Surgeons: M. M. Melrose to the *Vivid*, C. A. Ellis (temporary) to the *Victory*, and C. G. Sprague to the *Pembroke*, all additional. Temporary Surgeons: A. C. Anderson and T. H. W. Idris to the *Victory*, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon-Probationers: P. A. Mackay to the *Martin*, K. F. D. Waters to the *Porpoise*, D. I. O. Macaulay to the *Redpole*, R. McC. Burnie to the *Lapwing*, and F. M. T. Hintan to the *Nymphe*.

ROYAL ARMY MEDICAL CORPS.

Major Charles H. Fagge, 2nd London (City of London) General Hospital, to be temporary Honorary Lieutenant-Colonel, and to remain seconded whilst serving with the Hampstead Military Hospital (dated July 28th).

The undermentioned to be temporary Majors:—Robert Thornton Meadows, late Surgeon-Major, Army Medical Reserve of Officers (dated August 30th). Captain F. H. Humphris, R.A.M.C. (T.), (dated Sept. 6th). Thomas Basil Rhodes to be temporary Major whilst employed with the North Staffordshire Infirmary (dated Sept. 10th). Temporary Captain Donald K. McDowell, C.M.G., to be temporary Major whilst in charge of the Tooting Military Hospital (dated Sept. 22nd).

The appointment to a temporary Captaincy of Percival Wood is antedated to March 27th.

The undermentioned temporary Lieutenants to be temporary Captains:—Dated August 17th: Henry C. E. Quin. Dated August 23rd: James Fairley. Dated August 24th: Howard H. Hepburn, Ambrose L. Lockwood, and John M. Stenhouse. Dated August 25th: Francis A. Osborn. Dated August 26th: Hedley Boyers. Dated August 27th: James B. Cruickshank and William Frier. Dated August 28th: Tom Bragg, Frank A. Hampton, John I. Johnson, and Arthur V. Poyser. Dated August 29th: John F. Barr, Geoffrey M. Cowper, Alexander Lundie, Lawrence T. Stewart, and Matthew White. Dated August 31st: John M. Johnston, Herbert C. Lucey, Wallis J. Paramore, Douglas B. Spence, Ralph J. Tait, and Robert F. Young. Dated Sept. 18th: Robert M. Forde.

The undermentioned to be temporary Captains: Edward Postle Gwyn Causton, late Staff-Surgeon, Royal Navy (dated August 23rd). Dated Sept. 1st: Alma Percy Ford, Alexander Dingwall-Fordyce, and Horace Dorset Eccles.

The undermentioned temporary Lieutenants relinquish their commissions:—George S. Sims (dated August 5th), Moses J. Rowlands (dated August 11th), Louis D. Cohen (dated August 15th), Edward V. R. Fooks (dated August 28th), John P. Egan (dated August 29th), and Roy R. Kerr (dated Sept. 1st).

The appointment to a temporary Lieutenancy of Valentine Frederick Stock is antedated to July 2nd.

The undermentioned to be temporary Lieutenants:—Dated July 6th: Leslie Burton Burnett. Dated July 13th: John Gordon Thomson and Douglas Rodger. Dated July 17th: Arthur William Baker and Philip Vanner Earley. Dated August 7th: Melville Mortimer Adams. Dated August 9th: Norman Blake Laughton. Dated August 10th: Brian Whitehead, Hugh McIntyre. Dated August 12th: James Bennett Tombleson. Dated August 20th: Frank John Hathaway, Edward Vincent Williams, John Reginald Arthur Digby Todhunter, John Lindsay, Robert Massie, James Reid, William Vincent Johnstone, Thomas Ayscough Hawkesworth, John Caldwell Ferguson, John Wishart Welsh Hewitt, William Mason, Donald Cameron MacLachlan, William Ramsay Nasmyth, William James Dunlop Robertson, George Wright, John Young, John Bain, Robert Whitson Telford, Maurice Gilbert Hannay. Dated August 21st: George Walker, Alfred Charles Sandston, Lawrence Sebastian Morgan. Dated August 23rd: Frank Stanley Noble, Ralph Davies Smedley, John Arthur Gwynn Sparrow, John Christopher Davies, Duncan Malloch, George Douglas MacKintosh, Harry Rathbone Griffith, Archibald Todrick, James Williamson Martin, Arthur Cecil Laing, Henry Pierce Cuthbert, Oswald Erasmus Ward, David Harris Jones, William Frederick Shanks, Arthur Ashmore, Robert Philip Graham, John Ferguson Carruthers, William David Bathgate, Henry John Sullings Kimbell, Henry George Jamieson, George Agincourt Hodges, James Taylor Kyle, Edward Wick MacWilliam, Thomas Francis Weakliam, Rodolphus Whittaker Harper, Edgar Huntley, Joseph Stanilaus Doyle, George Johnston, David Jackson McAdam. Dated August 24th: Joseph Porter, David Marmaduke Gill, John Dickie, Edward Ratcliffe Holborow, Henry Valentine Fitzgerald, Walter Gilmour, Emile Horace George Duncan, David McKail, Richard Alfred Parsons. Dated August 25th: Eugene John McSwiney, Andrew William Palethorpe Todd, Sidney John Liddon Lindeman, George Munro, Alexander Rennie, Randal MacCarthy. Dated August 26th: Roderick Maclean, Howell Woodwell Gabe, Joseph Patrick Dee, James Lyone, George Rae Spence, Dugald Ferguson. Dated August 27th: Thomas Pretsell, Wilfred Barkes Alexander Whyte Cassie, James Beatty, Robert Percy Weldon, Reginald Puttock. Dated August 28th: William Thomas Wearing, James Macarthur, Henry St. John Randell, Andrew Wight. Dated August 30th: Thomas Milling, Herbert Gibbons Ward, Edward Segnier Sowerby, Herbert Alfred Bodkin. Dated August 31st: George Frederick Gill, George Taylor Gifford, Maurice Frederick Bliss, Thomas Hitchings James, Augustus Henry Aldridge, James Crowley. Dated Sept. 1st: Thomas Joseph Buckley, Patrick Thomas Tullock Macdonald, John George Cronyn, Thomas Davidson Miller, John Campbell Boyd, John McKie, Elliott John Storer, George Cooper, William Alexander Stuart, Louis Charles Martin, Malcolm Sommerville, John Sawers Findley, Alexander Scott, Percy Collins Litchfield, Ralph Vincent Howell, John Watson, Ralph Annesley Fuller, James Philip, Edwin George Bleakley Calvert, Herbert James Foote, James Wyper, Peter Sturrock, Christopher Hugh Leete Rixon, John Edgar Taylor, Henry James Thomson. Dated Sept. 4th: Henry Pratt Newsholme, John Mallock, Harold Sugden Vivian, and John Kerr Morton.

Lieutenant Andrew Topping, from The Gordon Highlanders, to be temporary Lieutenant (dated August 22nd, 1914).

The undermentioned temporary Honorary Lieutenants to be temporary Lieutenants:—Dated Sept. 1st: Joseph Bulmer Thackeray, Arthur Graham Winter, Henry Hugh Mathias, Laurence Mansfield Ingle, James Arthur Liley.

Temporary Lieutenant Arthur W. Hare relinquishes his commission on account of ill-health (dated Sept. 13th).

INDIAN MEDICAL SERVICE.

The King has approved the admission of the undermentioned to the Indian Medical Service:—Dated May 20th: Edward Alexander Marie Joachim Goldie. Dated June 9th: Sohrab Nusserwanji Forbes and Maneck Burjorji Patel. Dated June 14th: Narain Rama Rao Ubhaya. Dated June 19th: Caetano Joseph Fernandez. Dated June 21st: Ardeshire Behram Pestonji and Narimon Byramji Mehta. Dated June 24th: Said Shamsudin Mahamadi.

The King has approved the transfer of Major Clarence Barrymore Harrison to the temporary Half-pay List (dated July 31st).

The King has approved the retirement of Colonel Charles James Bamber, M.V.O. (dated July 12th).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps: Supplementary to Regular Units or Corps.

Captain Samuel Wright resigns his commission on account of ill-health.

Lieutenant John W. Malcolm is confirmed in his rank.

Second Lieutenant Robert Fowler Walker, from Royal Irish Fusiliers, to be Lieutenant (on probation).

TERRITORIAL FORCE.

Royal Army Medical Corps.

North Midland Mounted Brigade Field Ambulance: Lieutenant Arthur M. Clelland to be Captain. James Mitchell Mitchell to be Lieutenant.

South Midland Mounted Brigade Field Ambulance: Lieutenant-Colonel Arthur Gervase Hendley, Retired List, Indian Medical Service, to be Captain (temporary).

South Wales Mounted Brigade Field Ambulance: Norman Theodore Kingsley Jordan to be Lieutenant.

East Lancashire Field Ambulance: Captain John Bruce to be temporary Major.

West Riding Field Ambulance: The undermentioned Lieutenants to be Captains: John H. Blackburn, Lawrence A. Mackenzie, Henry W. Robinson, William H. Smailes, Benjamin Holroyd, Ernest White, and William W. J. Lawson.

Wessex Field Ambulance: The undermentioned Lieutenants to be Captains: Charles H. Maskew, Fred Ellis, Claude J. E. Bennett, John A. Bell, Angus Cameron, John P. Milton, Charles F. Backhouse, Arthur H. Davis, Philip McRitchie, Frank L. Dickson, Frederick Hardie, and Charles B. Stewart.

West Lancashire Casualty Clearing Station: Lieutenant William N. W. West-Watson to be Captain.

South Midland Field Ambulance: Gilbert Moore, late Lieutenant, Princess Charlotte of Wales's (Royal Berkshire Regiment), to be Captain.

London General Hospital: Captain Francis H. Humphris is seconded.

London Casualty Clearing Station:—The undermentioned Lieutenants to be Captains: Iorworth H. Lloyd-Williams and Eric S. Taylor.

Northumbrian Casualty Clearing Station: Lieutenant Colin Mearns to be Captain.

Welsh Casualty Clearing Station: Captain Evan J. T. Cory to be temporary Major.

South-Western Mounted Brigade Field Ambulance: The undermentioned Lieutenants to be Captains: Leighton H. Hay and William C. Hodges.

Yorkshire Mounted Brigade Field Ambulance: The undermentioned Lieutenants to be Captains: John Downie and Edward D. Ellis.

London Field Ambulance: The undermentioned Lieutenants to be Captains: Alfred M. Hughes, John M. Plews, Arthur E. Ironside, John A. Watt, Hector M. Calder, John MacMillan, Frank Coleman, Henry B. F. Dixon, Charles R. Woodruff, Wilfred R. Sadler, William H. Dickinson, Roger P. Stewart, Leslie P. Harris, George B. Pritchard, Ernest G. Annis, William B. Hill, William Scarisbrick, Thomas Murray, John F. W. Wyer, Stanley Wyard, Arthur E. Huxtable, William G. Lloyd, and Major Harry M. S. Turner, Falkland Islands Volunteer Corps (temporary). Lieutenant Philip S. Price to be Captain.

London Sanitary Company: The undermentioned Lieutenants to be Captains: Arthur H. Savage, Arthur G. Atkinson, James Clayton, Francis S. Carson, John Crawford, Kenneth MacLennan, John H. N. Price, George G. Johnstone, Walter K. Parbury, John H. Wood, George L. Easter, George W. Ellis, Ernest B. Pike, Gerald Q. Lennane, Chartres A. Molony, Patrick A. Galpin, Ashley G. G. Thompson, and William D. Frazer. To be Lieutenant: Osmond Cattlin.

Eastern Mounted Brigade Field Ambulance: The undermentioned Lieutenants to be Captains: Harold M. McC. Coombs, James MacB. Taylor, and Basil Fawssett.

London Mounted Brigade Field Ambulance: Lieutenant Harold E. Gibson to be Captain.

South-Eastern Mounted Brigade Field Ambulance: Lieutenant Edgar M. Jenkins to be Captain.

East Anglian Field Ambulance: The undermentioned Lieutenants to be Captains: Archibald B. Pettigrew, Arthur W. Hayward, and Robert Ellis.

Home Counties Field Ambulance: Major Joseph Ward to be temporary Lieutenant-Colonel. The undermentioned Lieutenants to be Captains: Arthur Maude, Hugh S. Palmer, James E. Turle, John S. Ward, Arthur C. Watkin, George M. McGillivray, Charles E. M. Hey, Edgar W. Matthews, Henry J. Brownrigg, Philip T. Jones, and Richard A. Freeman.

Western General Hospital: The undermentioned Lieutenants to be Captains: Charles H. Crawshaw, Edward S. Brentnall, Thomas P. Kilner, and Ivor J. Davies.

North Midland Field Ambulance: Major John E. O'Connor, from the Sanitary Service, to be Major.

Northumbrian Field Ambulance: The undermentioned Lieutenants to be Captains: Home A. P. Robertson and Kirton I. S. Smith.

Welsh Field Ambulance: Lieutenant Richard J. Isaac to be Captain.

Attached to Units other than Medical Units.—Captain David A. Hughes to be Major. Captain George F. Morley resigns his commission on account of ill-health. Captain Harold B. Porteous, from South-Western Mounted Brigade Field Ambulance, to be Captain. The undermentioned Lieutenants to be Captains: Noel G. Chavasse, Charles D. Law, Godfrey K. Maurice, William T. Briscoe, Arthur L. M. Churchill, Andrew Baxter, Morrice Greer, William Scott, Leslie M. Ladell, Cresswell Burrows, Daniel D. Brown, James H. Chauncy, Maurice U. Wilson, Humphry J. Wheeler, John Wotherspoon, George MacL. Levack, Harry G. Butterfield, Arthur S. Walker, Herbert Robertson, George Eustace, Joseph P. Fagan, Frederick G. Vicars, Alexander F. Wilson, Kenneth J. T. Keer, Edward J. Blair, George F. White, Hyman Lightstone, John H. Jordan, John J. Scanlan, Alfred H. Bell, Frank H. White, Lionel G. Pearson, Hugh H. Robinson, Thomas W. S. Hills, Eric L. Giblin, Ivan W. MacKinnon, Herbert Edward Murray, Edward Bromet, William Rogers, Thomas L. de Courcy, Tom R. Kenworthy, William Robertson, George L. K. Pringle, Thomas D. Bell, William H. H. Bennett, Andrew MacLennan (late Surgeon-Captain, Volunteer Battalion, The Cheshire Regiment), Percy W. Kent, Edgar Babst, and William J. Lacy-Hickey. To be Lieutenants: Meredith Broderick Dawson and Thomas Aspinall.

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Lieutenant William Boyd, from North Midland Field Ambulance, to be Lieutenant.

SANATORIA UNDER THE NATIONAL INSURANCE ACT.—A revised list of sanatoria and other residential institutions approved by the Local Government Board under the National Insurance Act, 1911, for the treatment of persons suffering from tuberculosis, and resident in England (excluding Monmouthshire), has just been issued by the Local Government Board and dated Sept. 11th. It contains also the names of the administrative counties and county boroughs in which the institutions are situate, and the date on which the approval expires in each case. It may be obtained at the price of 1*d.* from Messrs. Wyman and Sons, Limited, 29, Breams-buildings, Fetter-lane, London, E.C., or H.M. Stationery Office (Scottish Branch), 23, Forth-street, Edinburgh, or E. Ponsonby, Limited, 116, Grafton-street, Dublin. The previous list, issued on Feb. 25th, 1915, was revised only up to Feb. 20th, and is now superseded by the new edition.

MEDICAL DEFENCE UNION.—The annual general meeting of the Medical Defence Union was held in the library of the County Hospital, Bedford, on Sept. 16th, Sir John Tweedy presiding. The general secretary, Dr. A. G. Bateman, read letters of apology for non-attendance. The minutes of the last annual meeting held at Gloucester were then read, and the chairman, after submitting them to the meeting for confirmation, declared them confirmed. The President moved the following resolution: "That the report of the council for the year 1914, now formally presented, and which has been circulated to all members of the Medical Defence Union, be received, adopted, and entered on the minutes." Sir John Tweedy, in conveying to the meeting his sense of the honour done him in electing him president, stated that he should not deliver an address, but would merely make a few observations on the work of the society, assuming that all present had read the report. He had been impressed with the magnitude and variety of the applications made to the council. The special knowledge manifested both by the solicitor to the Union and by the general secretary had impressed him most favourably. Mr. M. A. Messiter seconded the resolution. Mr. Dennis Vinrace rose to a point of order, and moved that the report be sent back for certain additions, which he enumerated, to be added in a supplementary report. The amendment was not seconded, and the original motion was put to the meeting and declared carried. A motion was then proposed that the balance-sheet and accounts be received, adopted, and entered on the minutes, and this was duly put and carried.

Correspondence.

"Audi alteram partem."

THE SURGEON-PROBATIONERS (SENIOR MEDICAL STUDENTS) SERVING IN THE NAVY.

To the Editor of THE LANCET.

SIR,—Many inquiries have reached me concerning the position of senior medical students now serving in the navy as surgeon-probationers who desire to complete their professional course with a view to speedy qualification. By the kindness of the Medical Director-General I am enabled to state that the following instructions have been issued from the Admiralty:—

(*a*) Surgeon-probationers are to be granted reasonable leave of absence to attend their final examinations (Order of Jan. 1st, 1915).

(*b*) If the period of leave granted, which has been fixed at three weeks, is not sufficient, the request of a probationer to be demobilised for any period he likes is never refused.

In the present emergency it is desirable that the fifth-year students now on duty with the fleet should without delay become qualified for commission service. Their places might be taken by less advanced students who have passed the Second Professional Examination, and have received special instruction in "dressing" and in other "first-aid" methods of dealing with the wounded. Many of these men are eager to leave their studies and do service in the war. Some might find their opportunity by offering to take six months' duty as surgeon-probationers in the navy. They would thus liberate senior men who have already served for that period or more; and they might expect to be liberated in turn by their juniors in time for the summer session.

I am assured that the Admiralty desire to coöperate with the medical authorities in minimising the difficulties attaching to the "probationer" service. One of these difficulties, the undue interruption of the studies of men whose early qualification is a pressing need, would become less serious under the system of short service and frequent rotation which I here suggest.

I am, Sir, yours faithfully,

DONALD MACALISTER,
President of the General Medical Council.

University of Glasgow, Sept. 21st, 1915.

REPORT OF DEPARTMENTAL COMMITTEE ON DRUG TARIFF UNDER NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—In your remarks on the above report in THE LANCET of to-day's date, you point out how seriously the proposed method of abolishing the discount on chemists' charges might jeopardise the remuneration of panel practitioners. There can be little doubt as to the correctness of your views if the proposal that the Practitioners' Fund—that is, the portion of the Medical Benefit Fund reserved for the doctor's services—be made to guarantee the sufficiency of the Drug Fund to pay in full the claims of the chemist.

It is to be hoped that panel practitioners will never voluntarily consent to such a revolution.

Any such proposition should be met with the most determined opposition. In the first place, its legality would have to be tested. Section 15 (1) of the National Insurance Act clearly lays down that Insurance Committees shall make arrangements with duly qualified practitioners, according to regulations made by the Insurance Commissioners. Section 15 (5) again puts upon Insurance Committees the duty of making arrangements with chemists for the supply of necessary medicines, &c. It is obvious that these two duties are entirely separate, and that separate contracts are to be made with the doctors and chemists respectively. Notwithstanding that the expense of the drug supply depends entirely on the prescriptions of the doctors, there is nothing in Section 15 to warrant an imposition on the doctors of a liability of making good a deficit arising through the inadequacy of the chemists' contract with the Insurance Committee.

From the very inception of the Act the liabilities of the doctor and the chemist have been kept separate. Take, for instance, the speech of Mr. Lloyd George to the Nottingham miners on August 10th, 1913, nearly two years after the passing of the Act:—

> The doctors have the right to prescribe the drug they think is best adapted for the patient. When they do so, it *does not come out of their remuneration*, and the result is that the poor man who is insured can have as pure and potent medicine as the richest in the land.

What truth could there have been in such a statement if the Act permitted the doctor to be charged with the medicine when the 2*s.* allotted to the chemist proved insufficient? All the regulations hitherto framed have steadily maintained the same principle, and it may reasonably be contended that before so fundamental a change in the plain intention of the Act could be brought about by a new regulation further legislation would become necessary. No doubt, much was left to the Commissioners, but it was never intended that they should have the power to repeal important provisions of the Act.

It is a matter of life and death to panel practitioners to preserve intact at all hazards that portion of the Medical Benefit Fund that was earmarked by the Act as payment for their services only, and to refuse to allow it to be made in any way responsible for the claims of the chemist. To mix it up with the Drug Fund would be courting disaster. The tariff suggested would be a distinct advantage, and in normal times might not unlikely result in permitting the payment of the chemist's charges without abatement. Whether it can do so in the existing state of the drug market is another question. No doubt, the chemist's charges ought to be paid in full, and if he can get a guarantee to this effect in any other way well and good. But it is no part of our duty to take upon ourselves a burden that he is finding every day increasingly onerous.

I am, Sir, yours faithfully,

MAJOR GREENWOOD.

Hackney-road, N.E., Sept. 18th, 1915.

THE PATHOLOGY OF DIABETIC COMA.

To the Editor of THE LANCET.

SIR,—Under the above heading you published in your issue of Sept. 18th (p. 666) a short account of a preliminary communication of mine to the Physiological Section at the Manchester meeting of the British Association for the Advancement of Science. As this account contains certain inaccuracies, I should be obliged if you would publish this statement.

In severe diabetes there is most certainly a true acidosis; in other words, excess of aceto-acetic acid and β-oxybutyric acid are circulating in the blood. However, the neutrality of the blood tends to remain constant because of the diminution of its CO_2 content, which is another way of saying that the alveolar CO_2 pressure is lowered because the alveolar CO_2 is in equilibrium with the CO_2 of the arterial blood.

The object of my work has been to find out whether there is in diabetic coma, as is usually supposed, an acid intoxication—i.e., whether the acids accumulate in such quantity in the blood that the reaction of the blood (hydrogen ion concentration) is shifted in the acid direction in spite of the fall in the CO_2 content. I have found that in the depth of coma the blood does actually become more acid than usual, but that even so it is less acid than the blood is after mild muscular exercise or in cases of mild dyspnœa due to uræmia or cardio-renal disease.

I have drawn the conclusion that diabetic coma cannot be due to an acid intoxication, but it might be due to (1) the poisonous nature of the acids themselves, or (2) to the fact that the CO_2 content of the blood is diminished to a too great extent, provided it is the case that CO_2 possesses some quality necessary to life, apart from the fact that it is an acid, but I know of no evidence for this last supposition. I am, Sir, yours faithfully,

Queen Anne-street, W., Sept. 20th, 1915. E. P. POULTON.

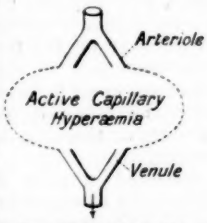
THE FUNCTIONAL DISORDERS OF THE VEINS.

To the Editor of THE LANCET.

SIR,—My honoured teacher, Sir Lauder Brunton, hesitates to accept my suggestion that local cyanosis is the result of spasm of the venules rather than of the arterioles. I think, however, that a strong case may be made out in favour of this view, both *a priori* and *a posteriori*.

There are three chief ways in which disordered vaso-motor action may cause local disturbance of the circulation: (*a*) By a dilatation of the arterioles

FIG. 1.

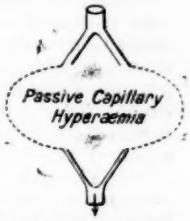


Showing arteriolar dilatation and active capillary hyperæmia.

FIG. 2.

Showing arteriolar contraction and capillary anæmia.

FIG. 3.



Showing venular contraction and passive capillary hyperæmia.

(Fig. 1) giving rise to accelerated capillary flow (as shown by the rapid refilling of the capillaries after the blood has been expressed from them), distension of the capillaries, swelling, redness, and heat in the area affected; (*b*) by spasm of the arterioles (Fig. 2), leading to collapse of the capillaries and venules, shrinkage, blanching, and coldness; and (*c*) by spasm of the venules (Fig. 3), causing passive congestion of the capillaries, retarded capillary flow (as shown by the slow refilling of these vessels after the expression of their blood), swelling, cyanosis, and coldness. (In Fig. 2 I should have made the venules narrower, inasmuch as arteriolar

spasm causes collapse of the venules as well as of the capillaries.)

In both (*a*) and (*c*) (especially the latter) the capillary blood pressure will be augmented; this will lead to increased exudation and thus tend to increase the swelling due to capillary distension.

I assume that these three morbid vaso-motor reactions may occur singly or be combined in various ways. Thus the arterioles and venules may be involved together in spasm, causing the tissues to shrivel and the skin to become pale or (if sufficient blood be left in the capillaries to show through) cyanosed. This combination of shrivelling and blueness is often observed after exposure to cold. Again, spasm of the venules may be combined with dilatation of the corresponding arterioles, when, in addition to the sluggish capillary circulation and the cyanosis, there will be marked augmentation in the capillary blood pressure and a correspondingly increased exudate. A part thus affected would be cyanotic and considerably swollen.

It will be observed that I attribute the modifications in the colour of the skin (the redness, blueness, and pallor) observed in vaso-motor disturbances, to changes in the colour and the amount of the blood in the transparent capillaries. The arterioles and the venules being less transparent, I should expect their influence on the colour of the skin to be less decided.

While it cannot be doubted that venular spasm, supposing it to occur, must necessarily cause retardation of the capillary flow, and consequently cyanosis, it is, I submit, open to doubt whether arteriolar spasm is by itself competent to produce cyanosis. Sir Lauder Brunton maintains that it is: he argues that the spasm, by diminishing the *vis a tergo*, allows the blood to accumulate in the venules. To me it appears more probable that the effect of a powerful arteriolar spasm is to cause an emptying of the related capillaries and venules into the veins, with consequent pallor, just as happens when the heart ceases to beat. Except in dependent parts, the resistance to the flow of blood from the venules into the veins is infinitesimal, and when the flow of venous blood is assisted by gravity—as in the uplifted hand, e.g.—the blood gravitates into the large veins by its mere weight.

Such being the case, how are we to explain the fact that a hand affected by vaso-motor cyanosis tends to remain cyanosed when raised? or the fact that a localised cyanosis of the nose, lips, or ears persists when the head and trunk are erect? How, except on the assumption that the blood is imprisoned in the transparent vessels of the skin by spasm of the vessels distal to them?

Sir Thomas Barlow has recorded a case of Raynaud's disease (which is simply an exaggerated form of blue hands or feet) in which there occurred a contraction of the veins of the affected limb, the very condition which I assume to exist in the venules.

So much for local cyanosis. Let us now consider general cyanosis. I shall confine my remarks on this head to the "congenital" form—that form, namely, which occurs in congenital heart disease—and I shall endeavour to show that venular spasm of the cutaneous vessels plays at least some part in the pathology of this condition.

It is generally assumed that congenital cyanosis is due to blueness of the arterial blood, and it was natural to attribute this hypothetical blueness to a commingling of the venous and arterial streams—e.g., through a patent foramen ovale; but this view had to be discarded when it was found not only that such commingling might occur without any cyanosis resulting, but that the patient might be cyanotic when there was no opportunity for any commingling to take place. It was then concluded that the supposed blueness must be due to defective pulmonary circulation (such as might result, e.g., from stenosis of the pulmonary orifice).

Are we sure, however, that the arterial blood is blue in these cases, or, at least, that it is as blue as the body surface? Of this I feel assured: the vaso-motor factor cannot be wholly eliminated, for there is clear evidence of the same kind of morbid vaso-motor reactions in the cutaneous vessels as occur in the purely local forms of cyanosis. Thus the blueness is not equally intense over the entire body surface; it is generally more marked in the face, hands, and feet than in other regions, and the phenomena observed in these areas of most intense cyanosis are so like those of local cyanosis that it can hardly be doubted that the same mechanism is at work in each case.

Pointing in the same direction is the fact, which I have frequently observed, that by friction of the skin—e.g., of the back—it is possible greatly to reduce the intensity of the cyanosis even to the point, as I and others have sometimes thought, of producing the normal arterial tint. But the most conclusive evidence that the arterial blood is not necessarily blue in congenital cyanosis was afforded by a cyanotic child observed by me in whom one of the fingers was vividly red. It is clear that in this case at least the arterial blood must have been red.

There should be no difficulty in testing the colour of the arterial blood. All that is necessary is to obtain a sample from an artery (e.g., the brachial) by means of a hypodermic syringe. The surgeons also ought to be able to throw light on this question.

I am not, of course, suggesting that, taking the entire blood mass, there is no hypervenosity; the great increase in the number of the chromocytes is evidently an effort to compensate for the defective oxygenating power of the blood. My contention simply is that congenital cyanosis cannot be wholly explained on the assumption that it is due to blueness of the arterial blood. I suggest that it is largely, and sometimes perhaps even entirely, due to spasm of the cutaneous venules, and that the intensity of this spasm differs in different regions causing corresponding differences in the degree of cyanosis.

Why the cutaneous venules should contract in these cases I confess puzzles me. The question naturally occurs whether it may be an attempt to favour oxygenation by retaining a large quantity of blood in the superficial capillaries, but such an explanation hardly suffices, seeing that arteriolar dilatation, by flushing the capillaries, would effect this object much more efficiently.

Is there any evidence that the deep tissues are cyanosed in these cases? It seems very unlikely that the central nervous system could tolerate for any length of time a degree of venosity of its capillary blood such as obtains in some parts of the skin. If my venular hypothesis is correct it should at all events be absent—or at least not intense—in certain of the deeper tissues. I mean those whose veins are devoid of a muscular coat—e.g., the retina, the brain, and the skeletal structures. What is the colour of the fundus oculi in blonde cyanotics?—I am, Sir, yours faithfully,

Wimpole-street, W., Sept. 11th, 1915. HARRY CAMPBELL.

A GREEN BACKGROUND FOR THE OPERATION AREA.

To the Editor of THE LANCET.

SIR,—Sir Berkeley Moynihan calls attention in your issue of Sept. 18th to the value of a green background—e.g., green towels—around the area of operation, and insists that good illumination is required only on the part concerned in the operation. Of the value of a theatre painted green, and of a floor laid with a green material, I have no personal experience, my private theatre being enamelled white with white enamelled fittings, but I can appreciate his contention, as one knows from other sources of experience how pleasing a colour a soft green is and how restful to the eye.

What I wish more especially to point out, however, is the effective and concentrated illumination of the operation area, and the rest to the eye thus secured from the intelligent use of a forehead mirror and source of light such as an electric "focus" filament lamp with proper mountings, or from one or other form of forehead band photophore.

It has always been a source of surprise to me that the general surgeon does not make more frequent use of the forehead mirror in deep operations, abdominal or intracranial, and my object in writing this letter is to suggest its more universal adoption in general surgical procedures, so as to secure what is really essential—viz., efficient illumination of the operation area, and incidentally to be independent of the vagaries of sunlight.

I am, Sir, yours faithfully,

Manchester, Sept. 20th, 1915. WILLIAM MILLIGAN.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Sept. 18th Sir Berkeley Moynihan advocates for the operation area an environment of green as being more restful to the eyes than the large expanse of white usually found. The writer has for three years had his operating theatre painted a light French blue (which so far has not been extended to the towels) and finds this colour equally relieving to the eyes. In the theatre colours are used also for purposes of ready identification. The coats and their bags, also the masks and caps, have distinctive colours; for the surgeons white, for the nurses blue, and for onlookers red, the latter colour having a suggestive significance of its own. I am, Sir, yours faithfully,

Plymouth, Sept. 19th, 1915. C. HAMILTON WHITEFORD.

LOCALISATION BY BERGONIÉ'S ELECTRO-VIBREUR.

To the Editor of THE LANCET.

SIR,—The installation of one of these instruments for revealing, localising, and facilitating the extraction of projectiles in the tissues saves hours of the groping about in wounds which is inevitable where the surgeon receives no other localising assistance excepting that which is obtainable from the present system of X ray help. It consists of a coil which, whilst being charged with an alternating current, sets up induced currents in any fragments of metal in its neighbourhood, thereby throwing them into a state of vibration. If a small piece of metal is clasped in the fist, and the vibreur approached, a vibration will be felt when it gets to within a few inches of it. If a surgeon places his hand flat over a part containing a piece of shell and his assistant approaches a vibreur, the *surgeon will feel a vibration from the fragment* which will guide him straight to it. If the fragment should happen to be inside a small bone, the whole of the bone will be felt to vibrate. If it is inside a large bone, no response is felt, and the surgeon has to work with X rays only.

On my first visit to the Hôpital Grand le Brun at Bordeaux a convoy of 15 wounded had just arrived. Eight were examined by Professor Bergonié with the vibreur, and localisations rapidly made in seven of them. The procedure was painless to the patients. As only tiny incisions are needed, not longer than is sufficient to insert the extractor and remove the foreign body, and as the duration of the operation can in a large number of cases be reduced to a few seconds, local anæsthesia is often sufficient. In three of the above cases the surgeon, M. Monod, gave injections of novocaine and adrenalin. The first patient had two pieces of shell in the deltoid: one, which was about an inch deep, was removed straightaway; the other, which was buried further down, needed two approaches of the vibreur before the extractor secured it, but even then the whole operation took less than two minutes. The operator then removed a piece of shell from the cheek, and did another arm case equally quickly. The remainder of these cases for various surgical reasons were given general anæsthetics, but in every one the vibreur was used during the operation and proved a great help. Cases where extraction would be practically hopeless, owing to the fragments being excessively minute and multiple, become quite easy with a vibreur.

The apparatus is simple, and its management can be learnt in a single morning, provided it has been installed by a competent expert who arranges the street main to the requirements of the vibreur. A few technical points, such as never allowing the current to run for more than 30 seconds at a time (to prevent the production of heat both in the apparatus and in the wound, which would be injurious to both) are easily mastered. The magnetic metals are, of course, most easily affected by a vibreur. The strength of vibration from a non-magnetic metal depends upon the product of its mass and its resistance. Tables giving scales of metals will be found in the *Archives d'Électricité Médicale* for July. In actual practice the vibreur is applicable to 95 per cent. of the projectiles used in this war. I am, Sir, yours faithfully,

Upper Brook-street, W., Sept. 18th, 1915. ETTIE SAYER.

*** The instrument has already been briefly noted in our columns by M. Monod.—ED. L.

THE FORMS OF LOWER ORGANISMS AS DEPENDENT UPON MOLECULAR CONSTITUTION AND ENVIRONMENTAL CONDITIONS.

To the Editor of THE LANCET.

SIR,—It is gratifying to find a letter under the above title in your issue of Sept. 11th from that veteran philosopher and experienced observer of natural phenomena, Dr. Charlton Bastian, drawing attention once again to his experiments in Nature's laboratory. No one who has studied pond life with the aid of the microscope can have failed to notice what an influence upon morphology has molecular constitution even in living organisms, nor could one fail to feel convinced that Dr. Bastian has

conducted important inquiries on lines which should be followed by others. As regards environment, I am sure Dr. Bastian will be as pleased as I am to note Dr. O. C. Gruner's contribution to your same issue, evidencing a breaking away from the trammels of red tape in the matter of pure cultures if we want to "ascertain what happens to organisms when they get into Nature." Once more as regards pathogenic bacteria, may I refer to my reply to the discussion on my paper on Evolution in Relation to Disease read before the Epidemiological Society of London in March, 1906,[1] when I argued that—

> Some of the principal evolutionary factors are there obtained in symbiotic relationship in individual throats. ..... These conditions obviously cannot be reproduced in pure culture; they cannot be demonstrated to others except by the aid of photo-micrography; and they can be studied only by sustained observation of cultures made daily from the particular throat which is the object of study. They can be appreciated only by the individual observer; unless by the aid of photo-micrography he can convince unbiassed observers of the sound bases on which his philosophical inductions are made.

My own observations were founded on direct examination of swabbings and cultures made and examined daily from the throats of diphtheria and scarlet fever patients.

Dr. Bastian's erudite and illuminative records of his researches in Nature's laboratories have been, I fear, somewhat neglected, but it is to be hoped he may yet see his experiments repeated by other observers as he desires.

I am, Sir, yours faithfully,

The Shirehouse, Norwich, Sept. 16th, 1915. J. T. C. NASH.

THE DEARTH OF MEDICAL MEN WITH THE FORCES.

To the Editor of THE LANCET.

SIR,—In view of the pressing need at the present time for the Government to obtain more medical men for the services, may I suggest through your columns to the War Emergency Committee that their difficulty would be reduced if they would first get the National Insurance Commissioners to pay immediately the whole of the money owing to panel practitioners for work already done and give a guarantee for payment in full in the future. Many medical men have been badly crippled by having had 40 per cent. of their income deducted, and are consequently not in a position to risk further loss by leaving their practices at the present time.

I am, Sir, yours faithfully,

Crosshills, Yorks, Sept. 20th, 1915. K. D. MARRINER.

AN AMENDED MEDICAL CURRICULUM.

To the Editor of THE LANCET.

SIR,—Letters have appeared in your columns recently under this heading advocating an "amended" and "modified" medical curriculum. An Australian example has been quoted, the students in the case volunteering to work extra time in order to get through the course earlier. I doubt this method. Working overtime, unless for a very short period, usually results in a deterioration in the quality of the work produced. This holds good in every branch of work; medical study is not an exception. Five years has proved to be barely sufficient time for the average student to master the studies prescribed in the medical curriculum. Any device for condensing five years' work into a lesser period will, unless in the case of a super-genius, mean inefficiency. Besides it would not do much for immediate requirements. Would a better plan not be to suspend the final examination while the war lasts, qualifying every person entitled to go up for it? This may seem a revolutionary proposal, but it is not so revolutionary as lowering the educational standard, which is the plain meaning of "amending" and "modifying" the medical curriculum. The Germans, I understand, abolished the final examination soon after the war commenced.

Examinations are not a true test of ability. Very few practitioners, consultants, or examiners could pass the "final" in its entirety without special preparation; but no sane person would suggest they were inefficient because of that. Why, then, during this unprecedented national crisis retain an ordeal which is interfering with the supply of medical men for urgent national needs? Passing that ordeal is not necessarily a test of efficiency, and in preparing for it a lot of valuable time is absorbed, and the labour could be much better utilised at present in many a sphere of clamant medical work. The demand for medical men is great at present; in a few weeks it will be greater. The supply will be inadequate for our military and civilian requirements. Why, then, still further limit this supply by adhering to academic technicalities?

I consider it would be much better, during this world upheaval, to dispense with an academic shibboleth, in the case of fully trained men, than to attempt to increase the supply of practitioners by reducing the educational standard, through "amending" and "modifying" the curriculum, and "widening the door," to quote some of your correspondents' statements.

I am, Sir, yours faithfully,

Sept. 20th, 1915. NATIONAL STRESS.

[1] Transactions of the Epidemiological Society of London, vol. xxv., N.S., p. 243.

Obituary.

PROFESSOR UGO SCHIFF.

BY a pacific penetration, which no high-minded Italian resents, Germany has made Italy's academic life more scientific and, in a professional sense, more effective. It was, indeed, on the initiative of the great Cavour that she reinforced her universities, mainly in the medical sciences, with able and accomplished professors from Teutonic seats of learning, to the signal advantage of the said universities and to the better equipment, in theory and in practice, of their students who proceeded to graduation.

Ugo Schiff, whose death on Sept. 8th at Florence academic Italy is now deploring, was a typical specimen of the transalpine recruit with whom she strengthened her teaching staff. Brother of Moritz Schiff, who for many years held the chair of Physiology in the Istituto di Studi Superiori in the Tuscan capital, till he was driven from it by an antivivisection agitation to Geneva, Ugo was born at Frankfort-on-the-Main on April 26th, 1834, graduated in medicine at Göttingen on Jan. 30th, 1857, and after distinguishing himself as a *Frei-dozent* at Vienna, went to Italy, first as chemical assistant in the University of Pisa and thereafter as Professor of Chimica Generale in the Museum of Natural History in Florence. From this post he was transferred as professor in the same subject to the University of Turin, and in 1879 he was elected to the chair of Chemistry in

the Florentine Istituto di Studi Superiori, which he held with conspicuous acceptance till his death.

For 36 years relays of students, mainly medical, passed through his hands, admirably trained in the biological and physiological aspects of chemistry, till there was scarcely a province of Italy in which the practitioner or consultant could not refer with gratitude to the teaching of Ugo Schiff. Many of his younger colleagues in the Tuscan universities had been his pupils, and when, in 1894, he had completed his sixtieth year, a testimonial was set on foot in recognition of that event, the sum of 4750 francs being handed over to him among other tokens of respect and gratitude. This sum, out of his own pocket, he increased to 5500 francs and dedicated the amount to founding a prize for proficiency in chemistry—a prize which the committee, presided over by the illustrious chemist the Senator Canizzaro, unanimously honoured by his name.

Indefatigable in chemico-biological research, he was one of the founders of the *Gazzetta Chimica Italiana*, and directed from its commencement the Istituto di Chimica. He held many academic titles at home and abroad, being honorary Fellow of the Chemical Society of London and of the German Chemical Association, besides being corresponding member of the Academy of Sciences of Turin. A sound philologist, he was also proficient in the history of medicine, especially in its chemico-physiological aspects, mediæval and modern, while another outlet of his activity was politics—of the advanced Socialistic school. As a young man, indeed, he was one of the founders in Germany of the International, on intimate terms with Hengel, Bakimm, and Marx, and for the part he played in its development had to flee from Germany, taking refuge in Berne, while Marx, similarly compromised, fled to Geneva. In Italy, however, he dropped active intervention in politics, except in founding the Socialist organ the *Avanti*, while before his death he had become so loyal to the Italian cause that no one was surprised at his not being included in the "stampede" which carried well-nigh all his compatriots precipitately beyond the Alps!

JOHN HENRY DAUBER, M.B., B.CH. OXON., F.R.C.S. IREL.,

LIEUTENANT-COLONEL, R.A.M.C.; SURGEON TO THE HOSPITAL FOR WOMEN, SOHO.

Lieutenant-Colonel John Henry Dauber, R.A.M.C., lately in command of the East Anglian Clearing Hospital, to whose death on the sinking of the *King Edward* we have already made brief reference, was the elder son of the late Mr. John Stockdale Dauber, of King's Lynn, Norfolk. For some 12 years he had been attached to the Sussex Yeomanry, and when war broke out was mobilised with his regiment. It was then found that the regiment had two surgeons, whereas the War Office only permitted one such officer. Dauber and his colleague tossed as to who should remain and Dauber lost. For a time, therefore, he had no military work, but eventually he was attached to the Eastern Command. Early this year, as second in command under Colonel Gibb, R.A.M.C., he formed the East Anglian Clearing Hospital, of which, owing to the somewhat sudden decease of his superior officer from pneumonia, he took command. In August he left England on the voyage to Gallipoli which was to terminate with his untimely death.

John Henry Dauber was best known in the professional world through his association with the Soho Hospital for Women, where he was attached for many years as assistant surgeon, becoming full surgeon only ten days before he started for the Dardanelles. As a matter of fact, he had for some time been allowed many beds in the hospital through the courtesy of Mr. Mansell Moullin, the senior surgeon. In everything which concerned the charity he was deeply interested. He took a prominent part in the business of rebuilding the hospital seven years ago, and was also a member of the committee of the hospital which drew up by-laws and regulations under which gynæcological surgeons, with modern surgical equipment, were appointed in place of obstetric physicians. He gave much time to the general work of the hospital, and was untiring in the care of his patients, often visiting a severe or interesting case several times a day. His loss will be keenly felt in the hospital. He was one of the original members of the executive committee of the Westminster division of the British Medical Association when the Association was reconstituted in 1902, and his outspoken criticisms, especially during the period of the National Insurance Bill, will be remembered by those present at the meetings. His year of office as chairman of the division was a successful one, while on more than one occasion he acted as the representative of the division in Representative meetings. He was also President of the Chelsea Clinical Society.

Colonel Dauber married in 1895 Margaret, third daughter of the late Colonel Addison Potter, C.B., of Heaton Hall, Newcastle-on-Tyne, and leaves one son, aged 14. He was a devoted husband and father, and we offer our sincere and respectful sympathies to those nearest to him on his patriotic death in the prime of life.

JOSEPH SMITH, M.R.C.S., D.P.H.

WE regret to announce the death on Sept. 18th of Mr. Joseph Smith, formerly President of the General Practitioners' Association, at the advanced age of 77 years. He retired to Gunnersbury, where his death occurred, after many years of general practice, most of which were spent at Guildford.

Joseph Smith was well known for his efforts to obtain recognition at the Royal College of Surgeons of England for the Members, and was a leading spirit in the societies formed with this object. In 1882, after being in practice for 20 years, he took the Diploma in Public Health at Cambridge, was formerly honorary surgeon to the Royal Surrey Hospital, Guildford, and was a justice of the peace for the county of Middlesex.

EDWARD JAMES SHEPPARD, L.R.C.P., L.R.C.S. EDIN.

Mr. E. J. Sheppard, of 46, St. Paul's-road, Clifton, Bristol, died on Sept. 20th from the result of a cycle accident which occurred two days previously. The deceased was the son of the late Mr. J. H. Sheppard, of Clevedon, and received his medical education at Bristol, University College, London, and Edinburgh University. He qualified L.R.C.P., L.R.C.S. Edin. in 1884, and shortly afterwards commenced practice in Clifton. He was medical officer and public vaccinator for the Clifton district of the Bristol union, and enjoyed the general esteem of a large circle in Bristol, Clifton, and the neighbourhood.

The War.

THE CASUALTY LIST.

THE following names of medical men appear among the casualties announced since our last issue:—

Killed in Action.

Captain H. C. Storrie, R.A.M.C., attached to the 2nd Battalion Royal West Surrey Regiment, graduated at Glasgow University, and was serving on the Metropolitan Asylums Board, London, at the beginning of the war.

Captain B. M. Hughes, R.A.M.C., 4th Norfolk Regiment, received his medical education at St. Bartholomew's Hospital, and was in practice at Wymondham, Norfolk, before joining the Royal Army Medical Corps.

Died of Wounds.

Lieutenant J. Clarke, R.A.M.C., 1st Welsh Field Ambulance (T.F.), took his medical degree at Edinburgh University, and was in practice at Cardiff when the war broke out.

Died.

Major J. O'Leary, I.M.S.

Lieutenant E. D. Parsons, R.A.M.C.

Wounded.

Captain J. R. R. Trist, R.A.M.C., attached to the 2nd Battalion York and Lancashire Regiment.

Captain A. G. W. Compton, R.A.M.C., attached to the 1st Battalion Coldstream Guards.

Lieutenant F. S. Bedale, R.A.M.C., 1st East Lancashire Field Ambulance (T.F.).

We are happy to state that the official announcement of the death of Lieutenant E. Roberts, 7th East Yorkshire Regiment, son of Dr. E. Roberts, of Leeds, is incorrect. Lieutenant Roberts, who was wounded, is now progressing favourably.

THE WASTAGE OF WAR.

The statement by the Under Secretary of State in the House of Commons on Tuesday, Sept. 14th, as to the total casualties in the British army during the first year of the war gives us an opportunity for considering our position; it also compels every thinking man to look ahead and to face the question, Are we doing our utmost for the cause to which we stand pledged? The total number of officers and men killed or died of wounds, wounded, or missing up to August 31st amounted to 381,982; of these the killed (including those died of wounds) numbered 75,957, the wounded 251,058, and the missing 54,967. In a previous communication to the House in June the Prime Minister stated that the total casualties up to the end of May (not including those in the Royal Navy) amounted to 258,069; of these 50,342 were killed. These figures need careful consideration.

It may be noticed in the first place that the casualties that have occurred during the three months, June, July, and August, numbered 123,913—that is, 48 per cent. of the number that had occurred during the preceding ten months of conflict, a very great increase in the proportionate loss of effective strength of the force. Secondly, the number of killed (or died of wounds) during the three months, June to August, numbered 25,615—that is, 51 per cent. of the killed during the preceding ten months, again a very great increase in the ratio of loss. Thirdly, with regard to officers, the total casualties to August 31st amounted to 16,438 killed, wounded, or missing; of these, 5483 occurred during June, July, and August, exactly 50 per cent. of the casualties (10,955) during the preceding ten months. In the absence of exact statistics as to the number of troops engaged it is impossible to determine whether the ratio of casualties to strength is increasing, but it is clear that the actual wastage has been in higher proportion during the more recent months of the war than earlier in the year.

We have, we must remember, no reason to suppose that during the coming six months there will be any appreciable relaxation in the pressure that our troops have to resist. We may, indeed, anticipate that before long Germany will transfer large bodies of men from the eastern area to the western. It may well be asked, Are we prepared to withstand an increase of pressure in the near future where hitherto we have only succeeded in holding our own? It is only the military experts who can calculate the necessities of the situation and forecast future requirements. But when these requirements have been stated, and stated quite clearly and distinctly by Lord Kitchener, we consider that the ordinary citizen should bestir himself, make himself acquainted with the facts, and ask himself whether he is doing all that he can do for his country. From the aspect of the London streets and the crowds of cheerful, contented, and apparently not overworked young adults who appear to be carrying on their "business as usual," there would seem to be still a large number of men of military age who are taking things quite easily, and who do not realise that their business, their income, their food, and their liberty are actually in danger, and that their country is fighting for its existence.

"Every fit man wanted" is not an exaggeration. Further, every fit man must be secured and utilised. If the nation fully appreciated the position, we believe that recruits would come forward without being compelled by law; but, as a people, we are slow to realise novel conditions. The Britisher also generally considers himself more than a match for the native of any other country in physique, enterprise, and general capacity. This was probably quite true in "the spacious times of great Elizabeth"; perhaps it is the case now, but certainly only when he puts forth all his strength, energy, and determination—his "total capacity." As Sir Alfred Turner has said, "We are in the throes of a life and death struggle with a treacherous, inhuman, and mendacious power which will assuredly crush all light and liberty out of us if we and our Allies do not humble her." The nation needs to utilise the whole of its strength in the present crisis, and the sooner this is realised by every responsible citizen the better; how this strength can be most effectively brought into action must be determined by the Government, which alone is competent to decide. It has the highest capacity and most extended experience at its command, it has the confidence of the country, and its decision will be loyally accepted and obeyed.

HEALTH OF MUNITION WORKERS COMMITTEE.

The Minister of Munitions of War, with the concurrence of the Home Secretary, has appointed the following committee to consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the personal health and physical efficiency of workers in munition factories and workshops: Sir George Newman

(chairman); Sir Thomas Barlow, K.C.V.O., F.R.S.; Mr. G. Bellhouse, Factory Department, Home Office; Professor A. E. Boycott, F.R.S.; Mr. J. R. Clynes, M.P.; Dr. E. L. Collis, Factory Department, Home Office; Dr. W. M. Fletcher, F.R.S., secretary, Medical Research Committee; Dr. Leonard E. Hill, F.R.S.; Mr. Samuel Osborn, J.P.; Miss R. E. Squire, Factory Department, Home Office; and Mrs. H. J. Tennant. Mr. E. H. Pelham has been appointed secretary to the committee.

The committee will hold its meetings at the offices of the Board of Education, and all communications should be addressed to Mr. Pelham there.

THE WAR EMERGENCY COMMITTEE: THE DEARTH OF DOCTORS.

There has been a notable absence with our army of those epidemic diseases which hitherto have always accompanied operations in the field and which on many occasions have been the cause of more deaths than those for which the bullet or the bayonet have been responsible. This result could not have been attained with an army of the size to which our army has now reached without unprecedented demands upon the medical profession, and great sacrifices have had to be made in order to meet these demands. It is clear, however, that more is still wanted of us. The number of medical men mentioned in these columns on August 28th as being that actually required by the War Office was 2000, and though many have taken commissions in the last few weeks, and though nearly a quarter of the medical profession in the country is now engaged on military duties in some form or another, yet more doctors have to be found for the troops.

The Executive Subcommittee of the War Emergency Committee has had before it the details of a plan which the local War Emergency Committee of Nottingham has devised, and the principle is so sound that no one will be surprised to learn that the Executive Subcommittee strongly favours the idea. In the Nottingham area, counting the men who have gone and the quota which that area has recently been asked to furnish, there will soon be a considerable number of medical men on active service, and the secretary of the Nottingham local War Emergency Committee, Mr. A. M. Webber, who has himself applied for a commission, urged on his committee the desirability of some special arrangement being made in the event of one of the medical men dying on service. Mr. Webber was of opinion, and this was shared by the committee, that all the men who had gone, or were going immediately, would feel their sense of responsibility to their families less overburdening if they knew that some definite arrangement was in force for looking after their interests in the event of their decease. The idea, which grimly but sensibly faces the possible tragedies, was adopted by the Nottingham Committee. It was agreed that small subcommittees should be appointed by the local War Emergency Committee consisting of a few men of high standing in the local profession who should undertake to act as professional advisers to and collaborators with the legal executors of any man who died on service. In such an event their duty would be either to sell the practice on the best terms available to the men who were already doing the work, or to see that the practice was carried on until some period after the war, when practices again become saleable in the usual way. The responsibility devolving upon such a committee would undoubtedly be very great, but the Nottingham men felt that anything that could be done to relieve the minds of the men who had gone or were going on active service should be done, and small committees were accordingly appointed for both the city and the county. We thoroughly approve the action taken.

ITALY AT WAR: THE LOSS OF VISITORS.

What with the transport of wounded from the front and the relays of prisoners escorted to the several camps of "concentration," the railway service has much extra duty thrown upon it, not least being the more vigilant observance of the sanitary regulations by which that service has to safeguard the travelling public. The "Direzione Generale delle Ferrovie" is quite alive to this, and by a circular recently issued indicates and enforces the provisions to be made throughout the various networks for the prompt and systematic cleansing of the carriages and the thorough disinfection of the same. All functionaries or groups of functionaries along the lines have their duties prescribed for them and their responsibilities specified. Each station-master is under the strictest obligation to maintain in perfect order and cleanliness the *locales* of the station itself, the waiting-rooms and the other spaces, open or covered, which the public or the personnel are in the habit of frequenting—the cleansing process to be put in operation several times a day or whenever there has been a departure or arrival of prisoners, of soldiers, or of refugees. Every time a hospital train, or a train conveying prisoners, makes a prolonged halt at any station the rails and the spaces between or on either side of them, are to be sprinkled with chloride of lime "in polveri"—all this, moreover, independently of the disinfections, ordinary or extraordinary, practised, or to be practised, by the *squadre* (companies) told off *ad hoc*. So systematically and so punctually are these regulations carried out that it may safely be said travelling by rail in Italy is exposed to fewer sanitary risks in this time of war than at any other season of the year.

A frequent correspondent writes to us as follows, under date Sept. 15th:—"It must be reassuring to the out-lying, mainly English-speaking, world that its annual visit to this or that Italian health resort or sun-trap need not be postponed this winter from any dread of the inconveniences (or worse) of railway travel. The lines, in fact, are now more vigilantly safeguarded from risks of any kind, sanitary or other, than in seasons when they are laden with tourists and goods traffic. As for residence in Italy itself, the hotels and pensions were never more benevolently inclined to the foreign arrival or paying guest than this year, and landlords or landladies alike are equally disposed to earn the certificate of character given them by Dr. Johnson of being "glad to see you, sorry to part with you, and glad to see you again." True, as in every belligerent, or even non-belligerent, State, prices have risen and living all round has become dearer. But that drawback is, in Italy's case, compensated, nay, more than compensated, by the increased value of the English pound sterling, which, in normal times equal to 25 Italian lire, now fetches 29 or often 30 lire—that is, 20 per cent. (or nearly so) of profit. Another drawback, besides those above indicated, is the irregular

or tardy postal deliveries. But, again, this has been minimised in proportion as the postal service, impaired at first by so much of its personnel having been called to the front, has now greatly improved, the hands, at first new to the duties, having become familiar with the routine. As to the benefits to be reaped by Italy from the continuance of her English-speaking *clientèle*, these are too well known to need recapitulation. The influx of English money is, indeed, one of her most lucrative assets, on which she relies every season, as Lower Egypt relies on the annual swelling of the Nile. The English-speaking world has always wished Italy well, having been her best friend in the dark days of her Bourbon or Austrian subjection, and equally so in the earlier stages of her Risorgimento. The English public, such portion of it as for this reason or that cannot possibly respond to any call for personal service at home, has a special reason, in the year now passing, to maintain or even to accentuate its alacrity to make Italy a health resort or point of pilgrimage."

THE EXHIBITION OF FRACTURE APPARATUS.

We have already announced that, with the concurrence of Sir Alfred Keogh, K.C.B., Director-General of the Army Medical Service, an Exhibition of the various forms of apparatus that have been found most useful in the treatment of fractures met with in the war will be held in the house of the Royal Society of Medicine, 1, Wimpole-street, W., from Friday, Oct. 8th, to Monday, the 11th, inclusive. The Exhibition will be open each day (except Sunday) from 10.30 A.M. to 5.30 P.M., and on Sunday, the 10th, though the building will be closed, visitors will be admitted on presentation of their cards. On the first day the chair will be taken at 3 P.M. by the President, Dr. Frederick Taylor, and the Exhibition will be opened by Sir Alfred Keogh.

The apparatus will be contributed by officers of the R.A.M.C. serving in France, and by those attached to the base hospitals in England. The principal exhibits will be brought from Boulogne by R.A.M.C. officers, who will come over for the purpose of demonstrating the use of the various appliances. Colonel Sir Almroth Wright, C.B., F.R.S., will demonstrate his most recent researches in the drainage of wounds, upon each day (except Sunday), during which the Exhibition is open.

Surgeons of the various commands are invited to send exhibits, and officers desiring to contribute should communicate with the consulting surgeon for their command.

THE MEDICAL STAFF OF THE ANGLO-RUSSIAN HOSPITAL.—The following are the names of the medical men who have notified their acceptance of positions on the staff of the Anglo-Russian Hospital:—

Commandant and chief sanitary officer: Dr. A. M. Fleming, C.M.G.; surgeon-in-chief: Mr. H. F. Waterhouse; physician: Dr. Thomas Horder; assistant medical and surgical staff: Dr. Gould May, Mr. A. B. Rosher, Mr. G. A. Jones, Dr. Mark Gardener, and Mr. H. F. Q. Thompson; and dispenser: Mr. Graham Bott.

Miss S. S. Irvine Robertson is going as matron, with a staff of 22 qualified nurses and 8 V.A.D. workers.

Orderlies and dressers: Mr. F. H. Schwind, Mr. Ryder-McNally, and Mr. Sisted will start from England with the hospital, but a staff of orderlies will be secured on arrival in Russia. It has also been decided to fill the posts of storekeeper and secretary in Russia.

THE SCARCITY OF NURSES.—Owing to the large number of nurses employed in connexion with naval and military hospitals local authorities find it very difficult to obtain trained nurses for various institutions over which they have control. As a result of inquiries addressed to boards of guardians in all parts of England and Wales by the clerk to the Bermondsey guardians it was found that in the majority of parishes the dearth of nurses formed a very serious problem. At Southampton the rate of remuneration had to be raised 30 per cent., and at other places the difficulty has been solved by reducing the number of sisters and employing patients to nurse those not requiring much active assistance. This procedure has its dangers, but will probably increase in frequency as the military hospitals make further demands upon the nursing provision of the country.

A SOUTH AFRICAN HOSPITAL FUND.—Lord Gladstone, who is president of the South African Hospital and Comforts Fund, has issued an appeal for subscriptions. The main object of the fund is the establishment of a hospital, either at home or at the front, with 500 beds for a new South African contingent. Comforts will be supplied for officers and men of the contingent, and the placing of convalescents will, if possible, also be undertaken by the fund. Subscriptions should be made payable to Mr. Otto Beit, 1, London Wall Buildings, E.C., and cheques should be crossed National Bank of South Africa.

WAR HOSPITAL SUPPLY DEPÔT, HIGHGATE.—On Sept. 20th the Lord Mayor opened a war hospital supply depôt at Highgate. The organisation, which is entirely voluntary and in connexion with the central depôt surgical branch of Queen Mary's Needlework Guild, is at Bishopswood-road, in a house lent by Mrs. Southcott. The women of the district will make hospital requisites for the wounded at home and abroad. In a needlework room will be made pyjamas, shirts, ward-suits, dressing-gowns, bed-jackets, and so on, and in a carpenter's room men are invited to occupy their spare time in making splints, &c. The Lord Mayor said that he hoped these depôts would increase. It concerned everyone who could not take a more active part in the war to help in relieving the sufferings of the wounded.

THE WAR IN RELATION TO INSANITY.—The report of the Renfrew District Asylum, Dykebar, Paisley, has been issued for the year ending May 15th, 1915. During the year 115 patients were admitted, 79 were discharged, and 34 died. There remained under care 326. In a very small proportion of the cases could the effect of the war be traced, as in causing business worry or anxiety as to relatives at the front, perhaps in from 3 to 5 per cent. As to the influence of alcohol as a cause of insanity, nearly half of the cases occurred in the first three months of the period under consideration. This, as far as it goes, would seem to indicate less excessive drinking since the beginning of the war, or a greater resistance to the effects of alcohol.

Medical News.

AIR RAID DANGERS.—The Commissioner of Metropolitan Police, Sir Edward Henry, has called attention to the public warning published on June 28th recommending residents to remain under cover during the presence of hostile air-craft in the neighbourhood, and to keep readily available a supply of sand and water for dealing with incendiary fires. Chemical liquid fire-extinguishers should not be purchased without a written guarantee that they comply with the specification of the Board of Trade, Office of Works, Metropolitan Police, or some approved fire prevention committee. It seems that no reliance can be placed on many dry powder fire-extinguishers. This is a warning issued as the result of experiments undertaken by a committee of experts at the instance of the Commissioner.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At a special meeting of the Council held on Sept. 16th, Mr. F. Conway Dwyer, the President, being in the chair, Mr. William Caldwell, M.A. R.U.I., F.C.S., was elected Professor of Chemistry and Professor of Physics in the

Schools of Surgery. The election of a professor of pathology was postponed. Professor Caldwell was educated at Campbell College, Belfast, and subsequently pursued his studies at Queen's College, Belfast, Trinity College, Dublin, and at Würzburg. He specialised in chemistry and physics and obtained the Andrew Studentship in these subjects, and subsequently the 1851 Exhibition research scholarship in organic chemistry. He studied chemistry for some years under Professor Hantzsch and Professor Medicus, and physics under Professor Röntgen and Professor Wien. After his appointment to Trinity College, Dublin, he graduated as senior moderator in the University of Dublin. In Trinity College, Dublin, he has been teaching for the last 10 years the subjects of physiological chemistry to the medical students, and inorganic, organic and physical chemistry to the students in the Indian Civil Service School, as well as lecturing in other institutions, and has found opportunity in his spare time to carry out and publish researches in many chemical subjects.

THE NATIONAL REGISTRATION ACT AND VOLUNTARY WORKERS.—Mr. Walter Long, the President of the Local Government Board, has addressed the following all-round communication to the numerous voluntary workers who have assisted the Government Department in the very heavy preliminary work entailed under the National Registration Act. "I have learned with great satisfaction of the extent to which the onerous duties imposed upon local authorities under the Act have been lightened by the coöperation of voluntary workers. In many areas the assistance thus rendered has not been limited to the work of emumeration, but is being continued in respect of the arduous task of completing the Register. I desire to offer the thanks of His Majesty's Government to all those who have so freely given time and trouble to this work, and to express my appreciation of their willing effort to assist in the carrying out, at the least possible cost to the community, of an undertaking which the Government regard as of the utmost importance. I am convinced that those efforts will be everywhere regarded as evidence of the determination of the people to do their full share in this time of anxiety and trial." It will be seen that much voluntary work is still being carried on in connexion with the steps to be taken to sift and utilise the vast mass of information obtained by enumeration.

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—At the opening of the seventy-fourth session of the School of Pharmacy on Wednesday afternoon, Oct. 6th, the presentation of the Hanbury gold medal will be made by the President, and the inaugural sessional address will be delivered by Sir Rickman J. Godlee.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

PARLIAMENT has reassembled. The business before both Houses relates almost exclusively to the conduct of the war and matters arising out of it. Last week considerable discussion arose in the House of Commons on the question whether the compulsory principle should be applied to obtain men for national service at this juncture. The debates revealed much divergence of view amongst some sections of private Members, but no declaration of policy was made by the Government on the matter. Until the necessities of the situation are placed before Parliament on the authority of the Prime Minister and Lord KITCHENER very many Members hold that they have not the materials before them to come to an individual conclusion on the subject. Nevertheless, it occupies the uppermost position in the minds of legislators in both Houses.

Casualties in the Dardanelles.

According to a statement made by Mr. TENNANT, the Under Secretary of State for War, the casualties for the Mediterranean Expeditionary Force, including the Naval Division, up to August 21st were as follows:—

	Officers.	Other ranks.
Killed, died of wounds, &c. ...	1130	16,478
Wounded	2371	59,257
Missing	373	8,021
	3,874	83,756

The total casualties were thus 87,630.

The Budget.

Large contributions from the professional classes are called for in the War Budget which Mr. MCKENNA, as Chancellor of the Exchequer, introduced in the House of Commons on Tuesday, Sept. 21st. The tax which falls heaviest on them is the income-tax. Mr. MCKENNA proposes to raise it by 40 per cent. on the current rates, but during the present financial year only 20 per cent. increase will be exacted. That is not the full weight of the burden. The limit of exemption will be reduced from £160 to £130 per annum. The abatement of £160 which used to be allowed on the assessment will be lowered to £120, but where the abatement was £150, or £120 before, it will become £100 in the future. Mr. MCKENNA also promised to introduce a system by which the payments of income-tax could be made in two half-yearly instalments, but that will not come into operation at once. Taxation is also proposed on war profits, and the duty on sugar, tea, coffee, cocoa, and tobacco is increased. The duty on motor spirit is to be raised by 3*d.* a gallon, and that on patent medicines is to be doubled. No additional taxation will be imposed on beer and spirits.

Medical Officer Prisoners.

It was stated by the Financial Secretary to the War Office in the House of Commons on Tuesday that medical officer prisoners in Germany and in this country got full pay.

HOUSE OF COMMONS.

THURSDAY, SEPT. 16TH.

Poisonous Fumes in Varnishing Aeroplanes.

Mr. ANDERSON asked the Under Secretary for the Home Department whether he would give a return of the number of cases of poisoning by fumes of tetrachloride of ethane which had occurred during the current year among workers employed in doping or varnishing the covers of aeroplanes, balloons, and similar work, and the number of these cases which had ended fatally; whether certain firms were employing a dope for this purpose which did not contain tetrachloride of ethane; and whether aeroplanes so treated had been found satisfactory.—Mr. BRACE replied: According to the information supplied to the Home Office, 19 non-fatal and 4 fatal cases of poisoning by dope containing tetrachlor-ethane have occurred during the current year. The inquiries in the latter part of my honourable friend's question concern the Admiralty and the War Office, and the Home Office is at present in communication with those departments on the points in question, but I may say that adequate precautions are being enforced by the Factory Department in all works in which the process of doping is carried on.

Female Nurses in Asylums.

Mr. PETO asked the Under Secretary for the Home Department whether his attention had been called to the question of the employment of female nurses in charge of male insane patients; whether this employment had been adopted by some asylum authorities and was approved by the Board of Control; and whether he would take into consideration the protest of the National Asylum Workers' Union in respect of it.—Mr. BRACE answered: For many years women have been employed in some asylums in nursing male patients who are not dangerous or otherwise unfitted for female care, and provided that precautions are taken the practice is approved by the Board of Control who found its results satisfactory. Since the outbreak of the war, in consequence of the difficulty of obtaining suitable male substitutes to replace attendants who have joined the forces, there has been some extension of the practice, but in every case within proper limits, and without harmful results. Careful consideration has been given to the representations of the National Asylum Workers' Union, but the Secretary of State regrets that he is unable to comply with their request that he should ask asylum authorities to discontinue the practice.

Nerve Shock amongst Soldiers.

Mr. ANDERSON asked the Under Secretary of State for War whether uncertifiable soldiers were being placed under lunacy control and sent to buildings attached to county asylums containing lunatics; and, if so, whether steps would be taken to see that all mental and nervous cases due to the stress and shock of war were treated absolutely apart from the Lunacy Commissioners until definitely certified.—Mr. TENNANT said in reply: The soldiers referred to are not in any way dealt with under the Lunacy Acts. They remain under the control of the Secretary of State for War. Two of the buildings in which they are being cared for form parts of two county asylums, but they are completely detached from these asylums, and the soldiers treated in them are in no way brought into contact with the inmates of the asylums. The importance of this is fully recognised, as is demonstrated in our method of treatment. Each case is the subject of special consideration by general physicians and neurologists, and is placed under the care of the most appropriate specialist in the appropriate institution.

Colonel YATE: Will the right honourable gentleman see those portions of the buildings occupied by those men are

not allowed in any way to be associated with the asylum?—Mr. TENNANT: That is and always has been done.

Sir W. P. BYLES: Are the soldiers deprived of the protection which the Lunacy Acts afford to innocent persons?—Mr. TENNANT: I am not sure that I know what my honourable friend means, but I can assure him that the first part of the answer which I gave to the question to-day has been absolutely adhered to up to the present. Whether it will be possible to continue to do so—that is, to refuse to certify in future—must depend on the accommodation and the number of specialists which we have at our command.

Sir W. P. BYLES: My question referred to the fact that the Lunacy Acts impose certain penalties for interning people without proper safeguards.—Mr. TENNANT: Really, that does not apply, inasmuch as none of these soldiers are certified.

Mr. W. ROCH: Are these soldiers in some cases under the care of medical officers of existing asylums who, though they may hold commissions in the Royal Army Medical Corps, combine those duties with those of the Asylums Board?—Mr. TENNANT: I dare say that may be true, but there are only a certain number of medical experts who are able to deal with those neurological cases, and therefore it is desirable that we should have the best expert advice in these matters.

Mr. T. M. HEALY: Will inspectors visit these soldiers and inspect them in the way they would ordinary cases?—Mr. TENNANT: No, because these soldiers are now under the charge and control of the Secretary of State for War, and inasmuch as they are not certifiable lunatics there is no inspection required. Should there be a large number of these men who have sustained nerve shock, I am afraid that it may not be possible to keep them indefinitely under the control of the Secretary of State and eventually we may have to certify them.

Sir H. CRAIK: Is it not the case that the medical profession are most anxious that none of those practices of inspection which otherwise apply to asylums should be applied to these cases?—Mr. TENNANT: They are.

TUESDAY, SEPT. 21ST.

Certification Arrangements in Ireland.

Mr. J. P. FARRELL asked the representative of the National Insurance Commissioners to state on whose advice he directed the Irish Insurance Commissioners to set aside the present certification arrangements for insured persons requiring benefit in Ireland; whether he was aware that by the proposal at least 200 doctors who stood by the National Insurance Act were threatened with loss of office and the salary agreed on; and whether, in these circumstances, he proposed to proceed with the new arrangements in violation of obligations incurred under difficulty by these doctors.—Mr. C. ROBERTS answered: The part-time appointments referred to by the honourable Member were made on purely a temporary basis pending the settlement of a permanent scheme for certification and were terminable by one month's notice on either side, and this fact was clearly indicated by the Irish Insurance Commissioners to all candidates for such appointments.

Diagnosis of Trench Fever.

Mr. CHANCELLOR asked the Under Secretary of State for War whether his attention had been called to the case of a twice-inoculated soldier suffering from trench fever, whose case was diagnosed as pyrexia; whether, in the case of inoculated men, trench fever will in future be given that name instead of typhoid; and whether careful records will be kept of all such cases and made available after the war.—Mr. TENNANT replied: I have seen a newspaper cutting which was forwarded to me by my honourable friend, but the cutting was useless as a basis for any investigation as it contained no details by which the soldier in question could be identified. On the general question I can assure my honourable friend that careful records of all cases of trench fever are being preserved, but I must repudiate the suggestion that men suffering from typhoid fever will be diagnosed as trench fever. The army medical authorities, who desire scientific accuracy as much as my honourable friend does, will not diagnose cases of trench fever unless the results of the bacteriological examination justify such a diagnosis. The subject of trench fever is being investigated at the present time.

Nerve Shock amongst Soldiers.

Mr. TOUCHE asked the Under Secretary of State for War what hospital provision, apart from lunacy control and association, with its industrial and social prejudice, had been provided where uncertifiable cases of nerve disturbance and loss of mental balance amongst the rank and file, requiring special and continued treatment, could be placed under special medical care.—Mr. TENNANT wrote in reply: Cases of the kind mentioned are treated in the neurological sections of 23 military hospitals in the United Kingdom. Accommodation for those cases is also afforded by the Springfield House Hospital, Wandsworth, and the Red Cross Military Hospital, Maghull, near Liverpool. I would further refer the honourable gentleman to a reply which I gave last week.

WEDNESDAY, SEPT. 22ND.

Recognition of Gallantry of Medical Officers.

Mr. T. M. HEALY asked the Under Secretary for War whether medical men wounded while attending to soldiers under fire would receive, or were entitled to receive, any special recognition for their bravery.—Mr. TENNANT wrote in reply: The mere fact of being wounded while attending to soldiers under fire does not entitle a medical officer to special recognition for bravery, but these officers receive full recognition for valour shown, their cases being considered on the same lines as those of other officers. Any exceptional circumstances would be given their proper weight.

Mental Disorders of Soldiers.

Mr. RENDALL asked the Under Secretary of State for War whether it was possible for the War Office to continue indefinitely its present practice of retaining under the control of the Secretary of State all cases of nerve shock, including the graver forms of mental disorder which in civil life would be certified and sent to county asylums; and how any change of practice would affect those cases now under the Secretary of State's control.—Mr. TENNANT answered: The subject of the disposal of the more serious mental cases has been receiving consideration, and has caused the authorities considerable anxiety. Owing to the increasing numbers of incurable cases I have to say that it will not be possible to continue indefinitely the system of retaining under the control of the Secretary of State cases of general paralysis, chronic epilepsy, and chronic insanity which have had previous asylum treatment. Such cases will in future be dealt with in the manner laid down in paragraphs 403, 404, and 408 King's Regulations. This new system will apply to the cases now under the Secretary of State's control in so far as they come within the three categories I have named.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, LIMITED, London.
Fatigue. By A. Mosso, Professor of Psychology in the University of Turin. Translated by Margaret Drummond, M.A., and Professor W. B. Drummond. Price 2s. 6d. net.

ARNOLD, EDWARD, London.
Qualitative and Volumetric Analysis. By W. M. Hooton, M.A. Oxon., M.Sc., F.I.C. Price 3s. net.

BAILLIÈRE, TINDALL, AND COX, London.
Aids to Physiology. By John Tait, M.D., D.Sc., Lecturer on Experimental Physiology, Edinburgh University, and R. A. Krause, M.D., D.Sc., Lecturer in Hygiene, College of Hygiene and Physical Education, Dunfermline. Price 3s. 6d. net.
Life: A Poem. By Basil Gordon Morison, M.D. Price 3s. 6d. net.
A Practical Manual of Bandaging. By Duncan C. L. Fitzwilliams, Captain, R.A.M.C. T. Price 3s. 6d. net.
The New Psychiatry (Morison Lectures, R.C.P. Edin., 1915). By W. H. B. Stoddart, M.D., F.R.C.P., Lecturer on Mental Diseases to St. Thomas's Hospital. Price 3s. 6d. net.

CHURCHILL, J. AND A., London.
Operations of Surgery (Jacobson). Sixth edition. By R. P. Rowlands, M.S., F.R.C.S., Surgeon to Guy's Hospital, and Philip Turner, B.Sc., M.S., F.R.C.S., Surgeon to Guy's Hospital. Vols. I. and II.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
Common Disorders and Diseases of Childhood. By George Frederic Still, M.A., M.D. Cantab., F.R.C.P. Lond. Third edition. Price 16s. net.
Manual of Surgery. By Alexis Thomson, F.R.C.S. Edin., and Alexander Miles, F.R.C.S. Edin. Vol. I., General Surgery. Vol. II., Regional Surgery. Fifth edition, revised and enlarged. Price 10s. 6d. each net.
Practical Prescribing and Treatment in the Diseases of Infants and Children. By D. M. Macdonald, M.D., F.R.C.P.E. Price 5s. net.
Wounds in War: Their Treatment and Results. By Lieutenant-Colonel D'Arcy Power, R.A.M.C. (T.). Price 2s. 6d. net.
Surgery of the Head. By Major L. Rathe Rawling, R.A.M.C. (T.). Price 3s. 6d. net.
Injuries to Joints. By Major Robert Jones, R.A.M.C. (T.). Price 3s. 6d. net.
The Stretcher Bearer: A Companion to the R.A.M.C. Training Book. Price 2s. net.
Abdominal Injuries. By Rutherford Morison, Professor of Surgery, Durham University, and Lieutenant-Colonel W. G. Richardson, R.A.M.C. (T.). Price 2s. 6d. net.
Medical Hints for the Use of Medical Officers Temporarily Employed with Troops. By Colonel J. Edward Squire, late R.A.M.C. (V.). Price 2s. 6d. net.

HEINEMANN, WILLIAM, London.
Germany's Violations of the Laws of War, 1914–15. Compiled under the Auspices of the French Ministry of Foreign Affairs. Translated with an Introduction by J. O. P. Bland. Price 5s. net.

LONGMANS AND CO., London.
Practical Organic and Bio-Chemistry. By R. H. A. Plimmer, Reader in Physiological Chemistry, University of London, University College. Price 12s. 6d. net.

WRIGHT, JOHN, AND SONS, Bristol.
Medical Annual Synoptical Index to Remedies and Diseases for the Ten Years 1905–1914. Price 8s. 6d. net.
Urgent Surgery. By Félix Lejars (Paris). Translated from the seventh French edition by William S. Dickie, F.R.C.S., and Ernest Ward, M.A., M.D., F.R.C.S. Vol. II.: Genito-urinary Organs; Rectum and Anus; Strangulated Hernias; The Extremities. Price 25s. net.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DEWAR, J. M., M.D. Edin., has been appointed Substitute Medical Officer of Health and Interim Physician at the Mackelvie Hospital, Oban.

GALBRAITH, S. NICOL, M.B., Ch.B. Glasg., D.P.H., has been appointed Medical Officer of Health for Newark-on-Trent.

HOMER, CHARLES, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Acting Deputy Medical Officer for the Wedmore District by the Axbridge (Somerset) Board of Guardians.

HUGHES, W. H., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Ashton-under-Lyne District of the county of Lancaster.

MARR, HAMILTON C., M.D., C.M. Glasg., F.R.F.P.S. Glasg., has been appointed, with the rank of Major, Specialist of Nervous Diseases with the troops at Malta.

NEWINGTON, C. W. H., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Edenbridge District of the county of Kent.

TURNER, S. B., M.R.C.S., L.R.C.P. Lond., has been appointed Temporary Medical Officer of Health to the Gelligaer Urban District Council.

WILSON, T. N., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Market Bosworth District of the county of Leicester.

WOOD, C. RAWDON, M.D. Durh., has been appointed Temporary Medical Officer of Health and Superintendent to the Hove Sanatorium.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BATH, WINSLEY SANATORIUM FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried. Salary £250 per annum, with board, residence, and laundry.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, fire, light, and attendance.

BRISTOL ROYAL INFIRMARY.—House Physicians and House Surgeons. Salary at rate of £120 per annum, with board, apartments, and laundry. Also Dental House Surgeon for six months. Salary at rate of £120 per annum, with apartments, board, and laundry.

CANTERBURY MENTAL HOSPITAL.—Locum Tenent Assistant Medical Officer. Salary £7 7s. a week, with board, lodging, washing, and attendance.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—House Surgeon for six months. Salary at rate of £140 per annum, with board, residence, and laundry. Also Student-Dressership for three months. Salary at rate of £26 per annum, with board, residence, and laundry.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon. Salary £160 per annum, with board, residence, and laundry.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Clinical Assistants in Out-patient Department.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.

HARROGATE INFIRMARY.—Resident House Surgeon. Salary £100 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Assistant House Surgeon. Salary £100 per annum, with board, residence, and washing.

HUDDERSFIELD, STORTHES HALL ASYLUM, Kirkburton.—Locum Tenens. Salary £6 6s. per week, with board, lodging, and attendance.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LEICESTER ROYAL INFIRMARY.—Resident Medical Officers. Salary above usual rate.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—Two Female Resident Surgeons for six months. Salary at rate of £100 per annum, with board.

LIVERPOOL, MILL-ROAD INFIRMARY.—Temporary Assistant Resident Medical Officer, unmarried. Salary at rate of £300 per annum, with board, &c.

LIVERPOOL POOR-LAW INSTITUTION AND INFIRMARY.—Assistant Resident Medical Officer. Salary £300 per annum, with board, washing, and apartments.

LOCHGOILHEAD AND KILMORICH PARISH.—Temporary Medical Officer and Vaccinator. Salary £100 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident Medical Officer and Assistant Resident Medical Officer. Salary at rate of £200 and £120 per annum respectively, with board, residence, &c.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Honorary Anæsthetist one or two mornings a week.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Senior House Surgeon for six months. Salary £150 per annum, with board, residence, and laundry. Also Female Resident Surgeon. Salary £120 per annum, with board, apartments, and laundry.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—Lecturer in Anatomy.

NEWCASTLE-UPON-TYNE POOR-LAW INFIRMARY.—Resident Medical Officer. Salary at rate of £200 per annum, with apartments, rations, and washing.

NORWICH CITY.—Temporary Assistant School Medical Officer. Salary at rate of £400 per annum.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £150 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—District Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

REETH UNION AND RURAL DISTRICT COUNCIL, Yorkshire.—Medical Officer (Muker District) and Medical Officer of Health (whole District). Salary £45 and £50 respectively.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary £350 per annum.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner in Dental Surgery.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Pathologist. Also Director of Pathological Studies in the London (R.F.H.) School of Medicine for Women. Salary £400 per annum. Also Male Resident Medical Officer to Military Block.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Two Refraction Assistants. Salary at rate of £50 per annum.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon and Casualty House Surgeon for six months. Salary at rate of £100 per annum each, with a bonus of £5 per month during the war, with board and residence.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board and residence.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary £150 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—House Surgeon. Salary £150 per annum, with residence, board, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich Grove, S.E.—Temporary Assistant Medical Superintendent. Salary at rate of £300 per annum, with board, apartments, and washing.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House Surgeon, unmarried. Salary £120 per annum, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Resident Medical Officer. Salary £160 per annum. Also House Physicians and House Surgeons. Salary £120 and £100 per annum respectively, with board, residence, and washing.

WEST HAM UNION INFIRMARY, Whipps Cross-road, Leytonstone, N.E.—Three Resident Assistant Medical Officers. Salary £300 per annum, with usual residential allowances.

WESTMORLAND SANATORIUM, Meathop, Grange-over-Sands.—Second Assistant to Medical Superintendent. Salary £200 per annum, with residence, board, and laundry.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary £150 per annum, with board, washing, and attendance.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

YORK COUNTY HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for Certifying Surgeon under the Factory and Workshop Acts at Aboyne, in the county of Aberdeenshire.

Births, Marriages, and Deaths.

BIRTHS.

BIRD.—On Sept. 14th, in London, the wife of Lieutenant-Colonel Robert Bird, C.I.E., M.V.O., Indian Medical Service, Calcutta, of a son (stillborn).

COBB.—On Sept 17th, at Broome-place, Norfolk, the wife of Ivo Geikie Cobb, M.D. Brux., of a daughter.

FOSTER.—On Sept. 14th, at Widey Grange, Crownhill, Devon, the wife of Raymond L. V. Foster, R.A.M.C., of a son.

TATLOW.—On Sept. 17th, at Adel, near Leeds, the wife of E. Tissington Tatlow, M.D. Dub., Lieutenant, R.A.M.C. (T.F.), of a son.

MARRIAGES.

HEDDY—NORTON-TAYLOR.—On Sept. 18th, at the Chapel Royal, Savoy, William Reginald Huleatt Heddy, Lieutenant, R.A.M.C. (T.), to Ruby, younger daughter of the late Dr. A. Norton-Taylor and Mrs. Norton-Taylor, of St. Margaret's, Pyrford, Surrey.

TAYLOR—PETO.—On Sept. 15th, at St. Stephen's, West Ealing, Cedric Rowland Taylor, M.B., B.C. Cantab., Lieutenant, R.A.M.C., to Frances Muriel, younger daughter of Mr. and Mrs. Frank Peto, of St. Leonards-on-Sea.

DEATHS.

SMITH.—On Sept. 18th, at Wellesley-road, Gunnesbury, W., Joseph Smith, M.R.C.S., L.S.A., D.P.H. Camb., J.P.

THOMPSON.—On Sept. 16th, John Ashburton Thompson, M.D., formerly Chief Medical Officer and President of the Board of Health in the State of New South Wales, aged 69 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

GRENADA HEALTH REPORT: AN ANTI-ANKYLOSTOMIASIS CAMPAIGN.

A REPORT on the Blue-book of the Colony of Grenada for the year 1914, prepared by Mr. Herbert Ferguson, Colonial Secretary, has just been presented to Parliament. It states that the population at the end of 1914 was estimated at 71,082. The birth-rate for the year was 39·20, as against 34·80 in 1913. This birth-rate has been exceeded only twice in the last ten years. The marriages numbered 311. The year was an unhealthy one, and an epidemic of dysentery caused 297 deaths, a great increase over the normal. The other chief causes of death were: Malaria, 107; diarrhœa and enteritis, 298; tetanus, 14; pulmonary tuberculosis, 64; tuberculosis of other organs, 7; syphilis, 28; cancer and other malignant tumours, 20; local diseases of the nervous system, 69; ditto of the circulatory system, 74; premature birth and diseases of early infancy, 68; senility, 87; heart failure and other ill-defined diseases, 137. The total deaths numbered 1514, as against 1344 in 1913—an increase of 170. The death-rate was 21·29, as against 19·27 in 1913.

The rainfall for the year was below the average. At Richmond Hill Station, in the south of the island, 61·87 in. were recorded, this being 12·98 less than in 1913 and 14·40 less than the average for the past 24 years. At other stations the rainfall (in inches) was as follows: North of Grenada (Sauteurs), 50·82; centre (Grand Etang), 118·03; extreme south (Point Saline), 24·77; Carriacou, 49·95. The maximum temperature in the shade was 90° F. on Oct. 27th, while the minimum in the shade was 68° on Dec. 30th.

The number of patients treated in the colony hospital was 2389, as compared with 1350 in the previous year, and of these 1956 were discharged as cured, 370 as relieved, and 63 died. The average stay of patients in hospital was 39·56 days, as compared with 49·50 in 1913. The operations performed numbered 147. The number of attendances in the out-patient department was 5393, and the same number applies to the prescriptions issued, 1076 of which were free. Patients treated in the Yaws Hospital during the year numbered 460, and 402 were discharged as cured. One death occurred; 55 patients were treated with salvarsan with most gratifying results. At St. Andrew's Hospital 232 patients were treated; 198 were discharged as cured and 12 as relieved; 9 deaths occurred. At Carriacou Hospital the number of patients treated was 213, and of these 175 were discharged as cured, 27 as relieved, and 3 as not improved; there were 8 deaths. The number of patients treated in the Hospital for Consumptives was 50, there having been 30 admissions during the year; 18 were discharged and 17 died, 15 remaining in hospital at the end of 1914. The longest stay in hospital of the males was 111 days, of the females 1 year and 3 days.

The work of the International Health Commission in its campaign against ankylostomiasis was started in the colony shortly after the arrival on August 27th of Dr. Angus Macdonald, who was selected by the Secretary of State to be the medical officer in charge. As a preliminary measure interest in the scheme was stimulated by lectures given at each school in the island and Carriacou, and this was followed by regular periodical visits for the treatment of sufferers at centres in each part of the island. Dr. Macdonald's efforts in this direction have resulted in the hearty coöperation of the people, and their voluntary acquiescence has made it possible to get into touch with every individual in the areas under operation. Dissemination of information in connexion with the prevention of hookworm infection is being continued by means of printed leaflets, by lantern lectures, and addresses illustrating the causes, treatment, and prevention of the disease, and by courses of instruction in general sanitation. By these means the interest and enthusiasm so necessary to the effective eradication of the disease are being sustained. From the fact that patients come to the head office from every parish in the island it is clear that a distinct dread of the disease has arisen among the people. Signs of enlightened views on sanitation are evident in the general efforts on the part of the people throughout the districts concerned, and in other districts, to construct satisfactory closets. The following up of the work of the International Health Commission by maintaining the areas dealt with in a satisfactory sanitary state has been engaging the attention of the local advisory committee, and a report on sanitary necessities is at present under consideration by the Government. On the advice of Dr. Howard, Medical Director for the West Indies, the intensive system of working is now being adopted, and the progress of the work up to March 31st, 1915, may be seen from the following figures: Persons examined, 8770; infected with hookworm, 4254; treated, 6014; cured, 1035; under treatment, 4929. Infection found: ankylostoma (hookworm), 60 per cent.; ascaris (round worm), 80 per cent.; trichuris (whip worm), 75 per cent.; all intestinal parasites, 95 per cent. The evidence obtained up to the present goes to show that all ages are infected, but that infection is uncommon under ten years and rare under five; that infection varies widely between different districts, due chiefly to differences of soil, cultivation, and perhaps of water-supply; and that from casual blood examination it is discovered that malaria is evidently prevalent on the island and is responsible for much morbidity. A special report on the comparative debilitating influence of the ankylostome and the malaria parasite is being prepared by the medical officer in charge. As there is an entire absence of statistics in regard to actual malaria infection, the report should prove of great use to the Government in their measures for improving the health conditions of the island.

The post of Colonial Surgeon has been revived after an interval of 13 years, and the Hon. E. F. Hatton, M.D., senior medical officer, was appointed to the office as from April 1st, 1914.

SUPERSTITION IN ESSEX.

To the Editor of THE LANCET.

SIR,—In the *Times* of Sept. 3rd there appeared a notice of the current number of the *St. Albans Diocesan Gazette*, which prints a letter received from a correspondent containing details of a reputed witch who was living in Essex, within 40 miles of London. A certain Mr. V—— relates that he was told by one woman that she was certain that an old woman who had died was a witch, as some time before she died one of the neighbours called on her and found her feeding her niggets. On Mr. V—— inquiring what were "niggets" he was told, "Why, those creepy-crawly things that witches keep all over them. She was sitting down with her niggets all round her, feeding them with little bits of grass all chopped up." This story has caused some little amount of comment in the newspapers, and one reverend gentleman has written to a newspaper to state that the word is used by a race of Indians in British Columbia and is connected only with witchcraft. "Nigget" or "nidget" really means "nestling," from Latin "Nidus," and in this instance possibly refers to the tadpole of the toad. The tadpole would answer the description of "a creepy-crawly thing," and possibly the method of feeding is one that could be employed with the tadpole. In the records of witches they were frequently said to be amused by magic toads "all round them" in a circle, who sprang up from and disappeared into the ground and danced for the delectation of the party. The full-grown toads expected to be rewarded with the flesh of infants. The toad, the winged serpent, the ferret, the newt, or ewt, or lizard, or anything in the shape of a dragon were all connected with the cult, besides cats, dogs, and goats or other pets. In 1589 at Chelmsford the charge of witchcraft against Joan Upney concerned chiefly her dealings with toads, and the charge against Joan Prentice, who lived in an Essex almshouse, had to do with ferrets. (*Vide* "A History of Witchcraft in England," by Wallace Notestein, of the University of Minnesota, a prize essay published by the American Historical Association, Washington, in 1911.) I am, Sir, yours faithfully,

Sept. 18th, 1915. AN ESSEX READER.

CURIOSITIES AND DEFECTS OF SIGHT.

IN connexion with the recent meeting of the British Association in Manchester, Dr. William Stirling, professor of physiology in the University of Manchester, delivered to working men and working women on Sept. 10th a lecture on the Curiosities and Defects of Sight, when an anonymous donor gave to every member of the audience a most interesting handbook of quotations, notes, and illustrations to supplement the lecture. The handbook contains portraits of René Descartes, Sir Isaac Newton, Thomas Wharton Jones, James Clerk Maxwell, George Wilson, William Bowman, Douglas Argyll Robertson, Claude Bernard, Hermann Ludwig von Helmholtz, Frans Cornelis Donders, M. E. Chevreul, Thomas Young, John Dalton, and Fritniof Holmgren. There are also reproductions of two well-known pictures—namely, Milton dictating "Samson Agonistes" to his daughter, and Charles Leslie's "Uncle Toby and Widow Wadman in the Sentry Box." Professor Stirling dealt in his lecture with various optical illusions. He described strobic circles, and it will be recollected that a good many years ago some commercial firms recognised the public interest in these optical

curiosities by displaying in their advertisements strobic circles of various kinds and colours, and chromatic illusions. The public like to have their eyes deceived and to be mystified to a certain extent; they pay large sums to professors of legerdemain to trick their eyesight, and no doubt these advertisements proved to be quite remunerative.

THE "DUBILIER" PORTABLE X RAY APPARATUS.

A VERY useful and convenient introduction in X ray work is the Dubilier apparatus, since it can easily be carried from place to place and can be used direct on any lighting circuit, whether a continuous or alternating current. In a pamphlet recently issued by the General Electric Co. Limited, of 67, Queen Victoria-street, London, E.C., the apparatus is fully described and some excellent examples of X ray photographs appear which illustrate the value of the apparatus in diagnosis, in medicine, surgery, and dentistry. Besides X ray work the apparatus can be used for obtaining high frequency current, and there is a switch for turning on a current for heating a cautery.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1915, which was completed with the issue of June 26th, were given in THE LANCET of July 3rd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1915 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, are as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs.50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 22nd, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 16	30·290	W.	...	109	76	64	65	67	Fine
,, 17	30·346	W.	...	129	79	65	64	67	Cloudy
,, 18	30·190	S.W.	...	112	66	59	60	61	Fine
,, 19	30·210	E.	...	110	75	59	57	59	Cloudy
,, 20	30·190	S.E.	...	109	67	52	53	57	Fine
,, 21	30·200	E.	...	105	69	54	52	56	Fine
,, 22	30·174	E.	...	111	74	54	54	57	Fine

The following magazines, journals, &c., have been received:—British Journal of Dental Science, Bulletin de l'Office International d'Hygiène Publique, Homœopathic Recorder, Maryland Medical Journal, British Dental Journal, Pacific Medical Journal, Pediatrics, American Journal of Orthopedic Surgery, Journal of Pathology and Bacteriology, American Medicine, Journal of Surgery, Journal of Tropical Medicine and Hygiene, Canadian Practitioner and Review, &c.

Communications, Letters, &c., have been received from—

A.—Australian Book Co., Lond.; Messrs. Allen and Hanburys, Lond.; A. B. K.; Amalgamated Press, Ltd., Lond.; Editor of; Mr. A. W. Arnold, Lond.; Army Medical Services, Lond., Director-General of; Australia, High Commissioner for, Lond.; Argus Suisse de la Press, Genève; Mr. E. Arnold, Lond.; Ayrshire Sanatorium, Glenafton, Medical Superintendent of.

B.—Lieutenant A. Barr, A.V.C., France; Messrs. Burroughs Wellcome and Co., Lond.; Messrs. W. H. Bailey and Son, Lond.; Dr. A. G. Bateman, Lond.; Bristol Royal Infirmary, Secretary of; Dr. W. Blair Bell, Liverpool; Mr Ll. E. W. Bevan, Salisbury, Rhodesia; Bread and Food Reform League, Lond., Secretary of; Mr. J. A. Barlow, Lond.; Dr. Dudley Buxton, Lond.; H.E. the Governor of Bengal, Calcutta; Messrs. P. Blakiston's Son and Co., Philadelphia; Dr. H. C. Bastian, Chesham Bois; Mr. A. H. Bizarro, Lond.; Messrs. Brook, Parker, and Co., Bradford; Dr. G. S. Brock, Udine; Colonel Sir A. Bowlby, France; Lieutenant-Colonel H. Barrow, R.A.M.C., Lond.; Dr. Bogle, Louth; Board of Agriculture and Fisheries, Lond.

C.—Dr. F. G. Chandler, Lond.; Dr. Hugh Crouse, El Paso; Messrs. Cassell and Co., Lond.; Sir W. Watson Cheyne, Chatham; Captain F. Charlesworth, R.A.M.C., Lond.; Cornwall County Council, Truro, Acting County Medical Officer of; Professor J. Michell Clarke, Clifton; Le Courrier de la Presse, Paris; Captain Carmichael, Thetford; Canterbury Mental Hospital, Acting Clerk to the; Lieutenant A. Compton, R.A.M.C., Weymouth; Colonial Office, Lond.

D.—Messrs. Duncan, Flockhart, and Co., Edinburgh; Denver Manufacturing Co., Lond.; Dr Vincent Dickinson, Lond.; Lieutenant-Colonel H. G. W. Dawson, R.A.M.C.; Devonshire Hospital, Buxton, Secretary of; Darlington Hospital, Secretary of; Dr. Binnie Dunlop, Lond.; Dr. James Donelan, Lond.

E.—Messrs. Elliott, Son, and Boyton, Lond.; Dr. N. Erian, Port Said.

F.—Dr. Alexander Fleming, Lond.; Lieutenant J. Foley, R.A.M.C., Malta; F. J. B.; Factories, Chief Inspector of, Lond.

G.—Mr. A. Withers Green, Lond.; Dr. James Gardner, Burscough Bridge; Captain Philip J. Gaffikin, R.A.M.C., Malta; Dr. Major Greenwood, Lond.; Dr. P. Eugene Giuseppi, Lond.; Mr. H. J. Gauvain, Alton; Mr. A. G. Gray, Madrid.

H.—Dr. C. O. Hawthorne, Lond.; Dr. Arthur J. Hall, Sheffield; Harrogate Infirmary, Secretary of; Mr. J. Hart, Lond.; Hudson's Eumenthol Chemical Co., Sydney.

I.—Insurance Committee for the County of London, Clerk of; Mr. Abdel-Aziz Ismail, Cairo.

K.—Dr. T. P. C. Kirkpatrick, Dublin.

L.—Rev. S. Scobell Lessey, Cinderford; London (Royal Free Hospital) School of Medicine for Women, Secretary of; Local Government Board, Lond., Secretary of; London Throat Hospital, Secretary of; Messrs. Lee and Nightingale, Liverpool; Mr. W. W. Linington, Dover; Leeds Public Dispensary, Secretary of; Mr. F. Lindsay, Mid-Calder.

M.—Sir William Milligan, Manchester; Middlesex Hospital Medical School, Lond., Dean of; Mr. K. D. Marriner, Crossbills; Mr. R. M. Morrison, Lond., Medical Correspondence College, Lond.; Major R. W. Murray, R.A.M.C.(T.); Captain B. C. Maybury, R.A.M.C., Netley; Colonel H. Mackay, A.D.M.S., Exeter; Manchester Hospital for Consumption, &c., Secretary of; Dr. Hugh Macewen, Glasgow; Mr. Louis P. Mendoza, Lond.; Mr. Cortlandt MacMahon, Lond.; Dr. H. Crichton Miller, Lond.; Maltine Manufacturing Co., Lond.; Mr. A. E. Melville, Lond.; Messrs. C. Mitchell and Co., Lond.; Manchester Corporation, Medical Officer to the; Mr. J. B. McDougall, Burslem; Mrs. McClumpha, Wigtown; Captain A. Manuel, R.A.M.C., France; Dr. F. C. Madden, Cairo; Messrs. Mather and Crowther, Lond.; Mr. J. Y. W. MacAlister, Lond.; Sir Donald MacAlister, Glasgow; Mr. F. Clare Melhado, Lond.; "Melco" Patents, Lond., Proprietors of.

N.—Dr. J. T. C. Nash, Norwich; Dr. David Newman, Glasgow; Newcastle-upon-Tyne Guardians, Clerk to the; North Ormesby Hospital, Middlesbrough, Secretary of; Messrs. Neale and Wilkinson, Lond.

O.—Miss F. O'Riardon, Lond.; Sir Thomas Oliver, Newcastle-on-Tyne.

P.—Dr. E. P. Poulton, Lond.; Partington Advertising Co., Lond.; Colonel J. G. Pilcher, I.M.S., Lond.

R.—Randall's Advertising Agency, Liverpool; Royal Portsmouth Hospital, Secretary of; R. E. I. J.; Royal Sussex County Hospital, Brighton, Secretary of; Royal College of Surgeons in Ireland, Dublin, Registrar of; Registrar-General, Edinburgh; Dr. Henry Robinson, Lond.; Dr. J. W. Rob, Weybridge.

S.—Dr. T. H. Suffern, Calabar; Messrs. G. Street and Co., Lond.; Messrs. W. H. Smith and Son, Lond.; Mrs. Stiebel, Brighton; Salford Royal Hospital, Secretary of; *Southern Weekly News*, Brighton; Dr. H. Harold Scott, Kingston, Jamaica; *St. Paul Medical Journal*, St. Paul, U.S.A.; Sheffield Royal Infirmary, Secretary of; *Shrewsbury Chronicle*, Manager of; Storthes Hall Asylum, Kirkburton, Clerk to the; Dr. Ettie Sayer, Lond.; Society of Members of the Royal College of Surgeons of England, Lond.

T.—Dr. J. C. Thresh, Chelmsford; Dr. Henry P. Taylor, Mid Yell.

V.—Dr. Dennis Vinrace, Lond.; Messrs. Vernon-Ward, Lond.; V. W.; Vitalite Sock Co., Lond.

W.—Mr. R. L. Wason, Clevedon; Mr. H. B. Wilkinson, Harrogate; Western General Dispensary, Lond., Secretary of; Messrs. J. Wright and Son, Bristol; West London Hospital Post-Graduate College, Dean of; Women Sanitary Inspectors and Health Visitors Association, Lond.; Mr. C. Hamilton Whiteford, Plymouth; West Ham Panel Committee, Secretary of; Dr. J. D. Wynne, Clonmel; Captain Wilson, C.A.M.C., Lond.; Wounded Allies Relief Committee, Lond., Secretary of; Whitehaven and West Cumberland Infirmary, Hon. Secretary of; Winsley Sanatorium, Bath, Secretary of; Dr. J. A. Wilson, Cambuslang; Dr. Clifford White, Lond.; Miss Helen Wyldon, Lond.; Dr. Norman Walker, Edinburgh; Dr. R. S. Woods, Lond.

Letters, each with enclosure, are also acknowledged from—

B.—Mr. F. J. Breakell, Farnworth; Mr. Gilbert Brooke, Singapore; Dr. A. Birmingham, Ballinrobe; Messrs. Butterworth and Co., Lond.; Mr. W. H. Battle, Lond.; Messrs. F. P. Baker and Co., Lond.; Mr. C. Bowen, Lond.; Surgeon J. D. Byrd, R.N., Lond.; Dr. T. L. Bunting, Newcastle-on-Tyne.

C.—Dr. E. K. Campbell, Portaferry; *Chester Courant*, Chester, Manager of; Mr. J. W. Astley Cooper, Cockermouth; Church Army, Lond., Secretary of; Christie Hospital, Manchester, Secretary of; City Hospital for Diseases of the Skin, Dublin, Secretary of; Dr. A. Compton, Weymouth.

D.—Dr. S. W. Daw, Leeds; Dundee Royal Infirmary, Secretary of; Mr. W. A. Dawson, Preston; Dr. C. Drake, Rochester.

E.—Mr. E. Evans, Felinfach; Dr. G. Evans, Alton; Dr. J. Elliott, Chester.

F.—Dr. H. Fraser, Kuala Lumpur; Miss L. Fowler, Brimpton; Dr. L. Findlay, Glasgow; Dr. S. Forrest, Adderbury; Messrs. Fredericks, Hayes.

G.—Mr. C. H. Green, Cheltenham; Dr. T. Grainger, Consett; Lieutenant N. F. Graham, R.A.M.C., France; Messrs. Godsell and Barnett Smith, Lond.; Dr. S. Gill, Formby; G. A. W.; Captain P. Withers Green, R.A.M.C., France.

H.—Messrs. Hingston and Carter, Liskeard; Mr. R. Hitchens, Lond.; Mr. John Heywood, Manchester.

J.—J. M. G.; J. F. H.

K.—Dr. A. Kinder, Parnell, New Zealand; Miss A. D. Kerr, Gisborne, New Zealand.

L.—Mr. T. S. Logan, Stone; Mrs. Lees, Lond.; Captain P. A. Lloyd Jones, R.A.M.C., France; Messrs. H. K. Lewis and Co., Lond.; Lochgoilhead, &c., Parish Council, Inspector to the; L. H.; Miss C. Lucas, Midhurst.

M.—Dr. McLaren, Weymouth; Mr. J. Milner, Bournemouth; Messrs. Macmillan and Co., Lond.; Mr. R. More, Glasgow; Messrs. Mawson and Co., Lond.; Dr. W. W. Maxwell, Thames Ditton; Captain A. A. C. McNeill, I.M.S., France.

N.—Mr. Burton A. Nicol, Durban; Nottingham General Hospital, Secretary of.

O.—Oxford Eye Hospital, Matron of.

P.—Messrs. Potter and Clarke, Lond.; Mr. C. Pink, Lond.

R.—R. C.

S.—Surrey Education Committee, Kingston-upon-Thames, Accountant to the; Surgeon D. B. Stringer, R.N., Lond.; Dr. P. T. Spencer-Phillips, Great Baddon.

T.—Dr. W. B. Thain, Winterton; T. H. B.

V.—Messrs. Gerth Van Wyk and Co., Lond.

W.—Messrs. J. Woodhead and Son, Huddersfield; Colonel C. Gordon Watson, R.A.M.C., France; Westmorland Sanatorium, Meathop, Secretary of; Dr. T. R. Whipham, Lond.

EVERY FRIDAY. **THE LANCET.** PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES and ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ... ... / Official and General Announcements	Five Lines and under £0 4 0
Trade and Miscellaneous Advertisements and Situations Vacant ...	Every additional Line 0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.
Special terms for Position Pages.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to advertisements; copies only should be forwarded.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Cheques and Post Office Orders (crossed "London County & Westminster Bank, Covent Garden Branch") should be made payable to the Manager Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to advertisements or subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agents for the Advertisement Department in France—SOCIÉTÉ EUROPÉENNE DE PUBLICITÉ, 10, Rue de la Victoire, Paris.